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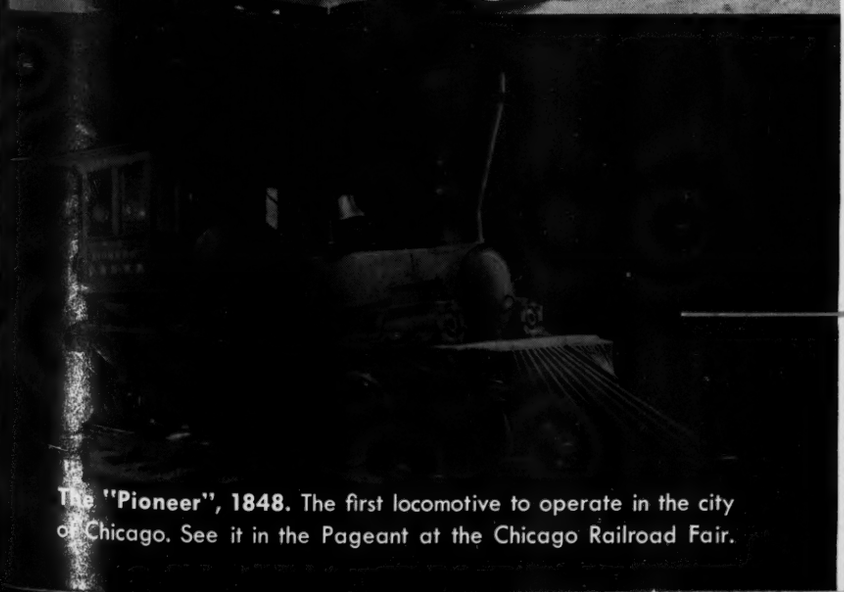
RAILWAY AGE

July 31, 1948

BALDWINS—old and new—on the Chicago and North Western



The "Pioneer", 1848. The first locomotive to operate in the city of Chicago. See it in the Pageant at the Chicago Railroad Fair.

Modern Road Switcher, 1948. Baldwin 1500-hp. diesel-electric road switching locomotive. Eight cylinder supercharged diesel engine. Six-wheeled truck. Six traction motors.

BALDWIN

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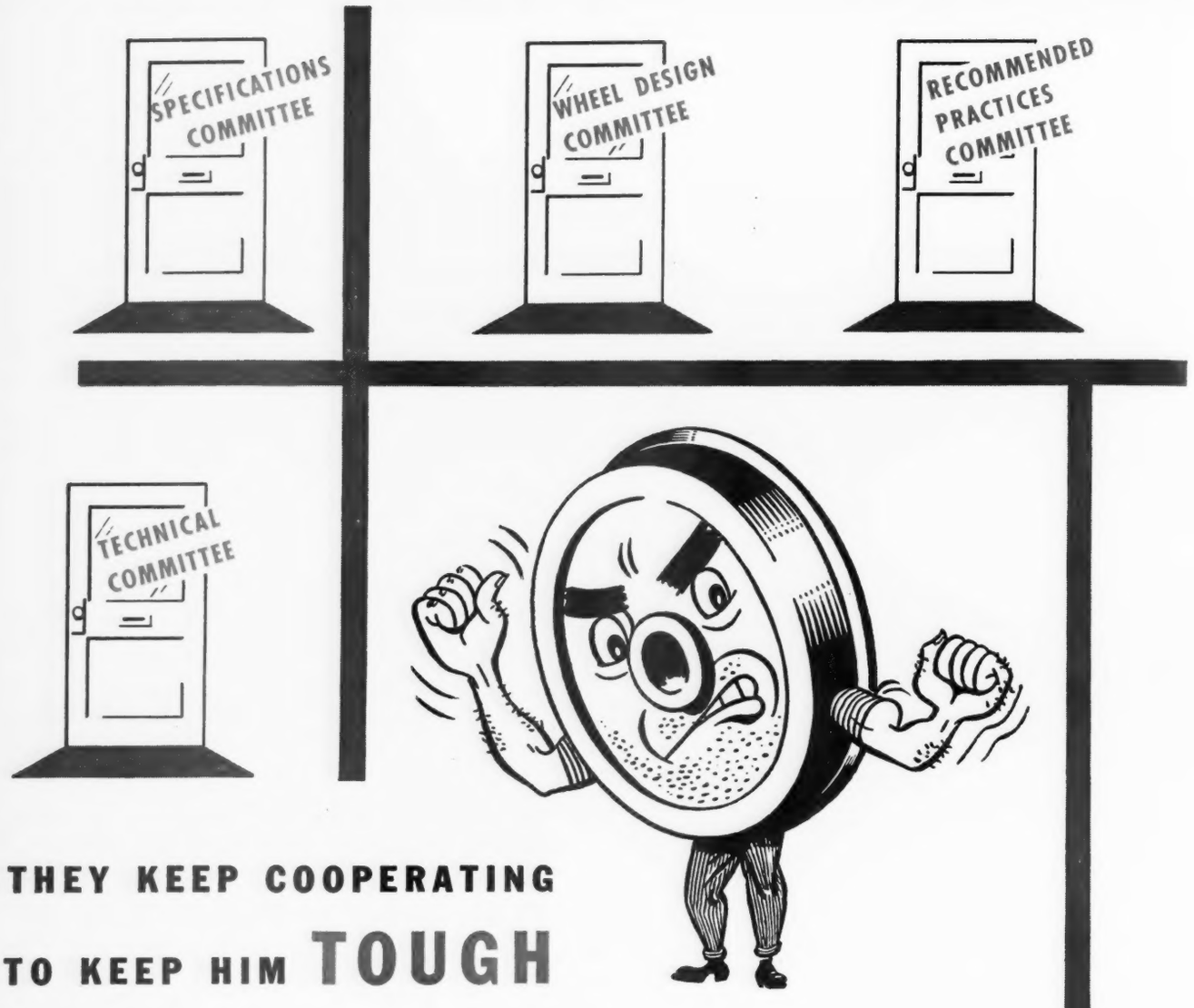

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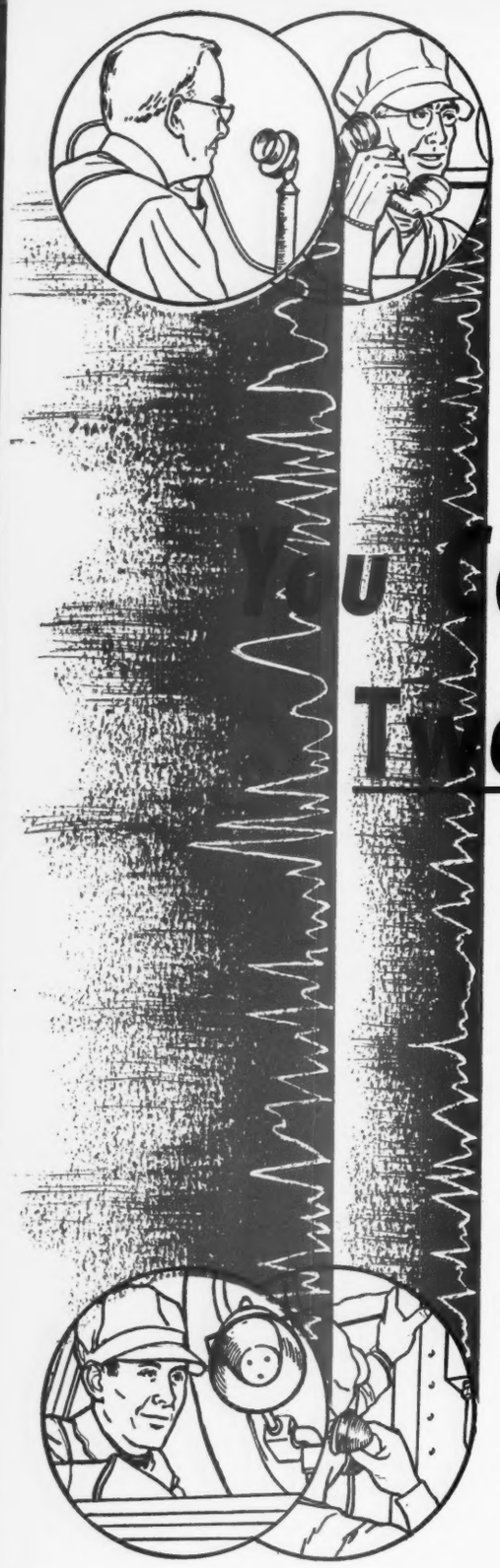

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WEEK AT A GLANCE

A LEAF FROM THE BROTHERS' BOOK: The Railway Labor Act contemplates settlement of disputes about wages by (1) direct negotiation, (2) arbitration, or (3) so-called emergency board recommendations. The railroads always have expressed willingness to employ each and all of these conciliatory processes, and to accept the resulting awards; and whenever the unions have gone along with them in such proceedings the awards always have been favorable to the brothers and costly to the carriers. Our leading editorial inquires where this sort of thing has to go on forever. The unions have refused arbitration and flouted the "fact-finders'" verdicts whenever they have thought they might gain by such obduracy. The railroads' managements have an obligation to keep the trains moving, of course, but they also have a duty to the public, to their employees, to their customers, and to the owners of the properties they manage, to protect the operating income of those properties from further depletion through wage increases. The time has come for management to do some refusing.

C. P. R. SAFETY CAR: The Canadian Pacific has converted a couple of troop hospital cars into rolling theaters, the primary purpose of which is to carry the road's safety instruction to remote points. A description of the cars appears in this issue. They are completely self-contained, with living quarters for the assigned personnel and a propane-engine powered generator to carry the electrical load at points where outside lines are not available.

HIGH-PRESSURE SUPERCHARGER: In this issue (page 24) General Electric's S. N. Hedman discusses the turbosupercharger produced by that company for use with Diesel engines installed on locomotives. Its performance characteristics are summed up in the light of the major design problems that had to be overcome. The objective is to supply air to the cylinders under high pressure, subject to the varying requirements imposed on the engine by changes in load and speed. The result when this objective is attained is a primary power source of relatively low weight per horsepower.

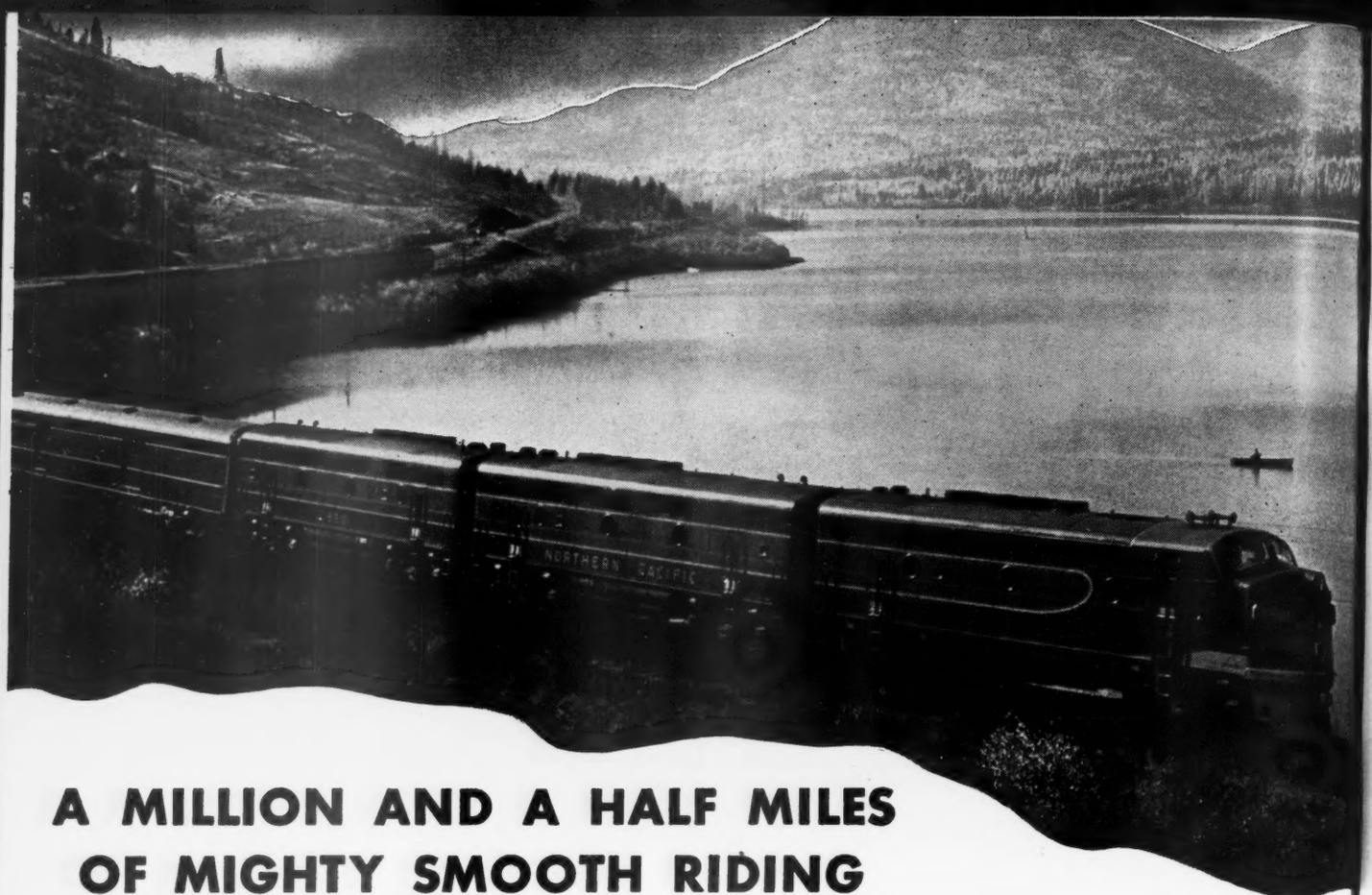
IN THE COMMISSION'S PURVIEW: If the railroads charged the government higher freight rates during the war than they should have, the Interstate Commerce Commission is perfectly capable of finding that out without the assistance of Justice Department functionaries, past or present, says President Faricy of the A.A.R. in a pungent comment on some recent testimony heard by a House subcommittee. It is indisputable that rates on government freight never were higher, and that in a great many cases they were lower, than rates paid by private shippers. The Justice Department now wants to keep the benefits of all the special low rates the government enjoyed while obtaining further cuts that might add up to $2 billion. Where would the railroads get that much money? The Justice Department isn't worrying; could some of its lawyers be thinking that if private investors don't keep the railroads supplied with capital there are other sources?

BRINGING IN THE "JUICE": Augmented electrical facilities for servicing passenger trains are now functioning at the Cincinnati Union Terminal. They include a lighting system that makes night work in the yard much easier and safer, and an arrangement of power outlets planned to meet all requirements for precooling and battery charging. The article on page 28 indicates the extent of this undertaking and gives specifications for the principal elements in the installation.

THE CAR SUPPLY PROSPECT: Old freight cars are being yanked off the rails faster than in any recent year, Car Service Division Chairman Arthur Gass reports in his most recent survey of the transportation situation (summarized in the news columns). While there was a net increase in cars on road last month, because deliveries of new cars exceeded these retirements, it isn't in the cards that that condition will last. Production in the first half of July was less than 2,900 cars. Yet the need, especially for open-top types, is still critical. A near-record wheat harvest is being moved as fast as the elevators can handle it.

CONTRIBUTING TO CAR-MILES: One way to lick a car shortage is to build more cars; another way is to get more mileage out of cars in service. The Chesapeake & Ohio is using both methods in striving to make its supply of coal cars match the demand. Our news pages report that road's decision to order another 1,000 70-ton hopper cars, in addition to 9,000 cars previously ordered since January, 1947. And the illustrated article on page 38 describes measures undertaken in the vicinity of the Presque Isle (Toledo) docks on Lake Erie, at a cost of $3.5 million, to expedite the classification of loaded cars coming in from the mines and otherwise to better their turn-around time. Classification of arriving trains has been accelerated 66 per cent by a general rearrangement of the Walbridge yard facilities, which included the installation of car retarders, power switches and skates.

FACTS BEAT HUNCHES: Competitive conditions require the railroads to go after traffic aggressively. To do this with any prospect of success, it is essential to know what the potential traffic is and where it is, what inducements in the way of policies and equipment and service the railroads will have to offer to get that traffic, and whether it will be profitable if they do get it under those conditions. The New Haven has had a basic traffic research program in operation to uncover the data on which informed decisions of this nature must be based. The article on page 31 explains how this program works, and what some of its results have been.



A MILLION AND A HALF MILES OF MIGHTY SMOOTH RIDING

Quiet, comfortable travel — dependable "on-time" arrivals — the restfulness of clean luxurious accommodations — the traveler, bent on either business or pleasure, selects the trains that offer these modern conveniences.

That's why the Northern Pacific chose General Motors Diesels — seven 4500 H. P. locomotives — to power the streamlined "North Coast Limited" on its multi-stop run between St. Paul and the Pacific Northwest. (General Motors Diesels also power the North Coast Limited over The Burlington between Chicago and St. Paul.)

In their first year of operation, these smooth-pulling locomotives amassed a total of 1,476,375 miles, rolling up more than 18,000 miles a month per locomotive. As shown by the performance table, they did it with an average availability of 87.8%* — a figure that indicates they met their mileage assignments virtually 100% of the time.

Such a record attests the superiority of Electro-Motive design and construction just as it does the quality of Northern Pacific care and maintenance.

GM DIESEL PASSENGER LOCOMOTIVE PERFORMANCE ON THE NORTHERN PACIFIC

Loco. No.	Date Placed Into Service	H. P.	Total Miles Operated	Av. Miles Operated Per Month	Percent Availability*
6500	1-22-47	4500	224,546	18,712	89.6
6501	1-24-47	"	212,596	17,716	87.8
6502	1-25-47	"	223,584	18,632	87.4
6503	1-26-47	"	220,444	18,370	88.0
6504	1-28-47	"	217,413	18,118	87.3
6505	1-27-47	"	213,758	17,813	87.2
6506	5-3 -47	"	164,034	18,226	87.2
	TOTAL		1,476,375	18,227 (Av.)	87.8 (Av.)

*Availability determined on basis of hours available for service to total potential hours.

ELECTRO-MOTIVE DIVISION

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GM LOCOMOTIVES

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RAILWAY MANAGEMENT AND THE NEW WAGE MOVEMENT

The movement of the railway labor unions for another advance of 25 per cent in wages presents to railway managements some questions of unprecedented difficulty.

The labor unions often have declined arbitration under the Railway Labor Act and often have even rejected the recommendations made by fact-finding boards appointed by the President. The railways always have expressed willingness to arbitrate and to accept the recommendations of fact-finding boards.

Always on the Losing Side

Should the railways continue the same policy? This question is raised because of the past results of the policy. Unless our memory misleads us, there has never been an arbitration board created or a fact-finding board appointed under the Railway Labor Act which has not awarded or recommended changes that increased railway labor costs. The railways always have had as much legal and moral right to refuse to arbitrate or to reject the recommendations of a fact-finding board as the labor unions have had. Has not the time come when they should exercise this right?

More than three years have now elapsed since the end of the war with Germany and almost three years since the end of the war with Japan. Throughout these years, in spite of the largest peacetime traffic in history, increases in railway rates and earnings have so constantly lagged far behind increases in wages and other expenses that net operating income has averaged only about $700 million a year—less than half of what it should have been. After repeated advances in both wages and rates since the war, net operating income finally increased following the late rate advance (in April) to $90 million in the month of May. This figure for May, the largest in any month since July, 1945, indicates that on the bases of the present volume of traffic, the present rates and current unit costs, the railways could earn about $1,200 million net operating income a year.

But now come the labor unions with their demand for an advance of 25 per cent in a payroll presently running at an annual rate of $5,000 million—i.e., for an increase of about $1,250 million a year, which, in spite of all the advances in freight and passenger rates made since the war, would very neatly wipe out *all* net operating income at the annual rate at which it was earned in May.

If railway management agreed to arbitrate this dispute it would thereby legally obligate itself to pay whatever advance in wages was awarded. In the absence of arbitration the dispute doubtless would be referred to a fact-finding board. Experience makes it virtually certain that, regardless of the merits of the unions' demands, an arbitration board would award or a fact-finding board would

recommend another advance in pay. Another advance in pay, even though only a fraction of that being demanded, would necessitate another advance in rates.

In these circumstances, just what are the duties of railway managements to their employees, security-owners and customers, and to the public? Their primary duty to all is to spare no effort or risk not only to prevent any reduction in net operating income as it has been earned since the last advance in rates, but to cause an increase of it. A net operating income of only $700 million a year derived from a record peacetime traffic, as has been done during the last three years, is a menace to the nation's welfare. Received as it is in a dollar of greatly reduced purchasing power, it is not half enough to enable the railways to accomplish the improvements and expansion they imperatively need, whether to contribute their share toward keeping the nation prosperous in peace or toward enabling it to become victorious in war.

Rate Rise Must Accompany Wage Rise

To make as sure as they can of the railways getting at least twice as much net operating income annually in future as during the last three years, railway managements should adopt a policy of refusing to commit themselves in any way to make any further advance in wages unless certain there is to be made simultaneously an at least equal advance in rates.

To obligate the Interstate Commerce Commission to authorize advances in rates simultaneously with advances in wages would require legislation that would revolutionize the present system of government dealing with the railways under the Railway Labor Act and the Interstate Commerce Act. But, as *Railway Age* repeatedly has pointed out in editorials within the last year, this system has so completely broken down that in the first three years of the postwar period it caused the railways, allowing for decline in the value of the dollar, to earn less net operating income than they earned in the depths of the depression.

Railway managements have no legal or moral duty, by agreeing to arbitrate or accept the recommendations of fact-finding boards, under the Railway Labor Act, to condone the results of such a system and help maintain and operate it. On the contrary, the time has come when they have a plain duty to refuse to arbitrate under the Railway Labor Act, to refuse to accept recommendations of fact-finding boards for advances in wages, and to refrain from *voluntarily* doing anything else that will contribute toward keeping railway net operating income so low that it will continue to constitute a menace not only to the future of the railway industry but to the future of the United States, whether in peace or war.

HOW TO IMPROVE THE FUNCTIONING OF DIRECTORATES

How industry can get more useful service out of its directors—and a guide for directors themselves, telling them ways to perform their uniquely important function more effectively—is the subject of a recent report issuing from the research staff of the Harvard Business School.* Many of the country's leading industries, including a half-dozen major railroads, have discovered the unusual practicality of this school's teaching materials; and the number who are learning about it is growing. Briefly told, the "secret" lies in the fact that the school does not teach business administration out of textbooks. Instead, it sends its researchers out into industry to collect actual "cases"—real business problems and how they were solved (or might have been solved); and the students learn business by the discussion and solution of situations from real life.

Intimate knowledge of the performance of hundreds of directorates, and their failures and successes, has provided the background for this report. The information has been systematized into a logical pattern, making a book that is easy to read. Enough instances are given of the dangers inherent in "dummy boards," even to the executives who may prefer not to have bosses, to convince the most skeptical that the American enterprise system is never going to deliver the best of which it is capable until it has directorates which are as able and strong as circumstances permit.

The all-important board function of selection of executives is given detailed discussion, and some timely principles are developed (all from actual experience)—among them:

The existence of an understudy for the chief executive job does not relieve the board of responsibility in exercising discretion when it comes actually to naming the new man; it is unwise to rely on any automatic device for such selection.

The test of fitness of a specialist for a top executive position is not his mastery of his specialty but his promise of ability to grow into leadership of a balanced organization for dealing successfully with ever-changing situations.

If members of the operating staff are aware that the chief executive has the support of an active, informed board of directors, there will be fewer challenges to his authority and less likelihood of jealous attempts to hamper his plans.

Directors have a difficult task to determine how far they should go in prescribing policy without encroaching on the responsibilities of management—not far enough is as dangerous as too far. Many instances are given in this book to illustrate wise and otherwise behavior from actual experience in dealing with this problem. The importance

**The Board of Directors and Business Management* by M. T. Copeland and A. R. Towl. Published by Harvard Business School, Soldiers Field, Boston, Mass. Price $3.25.

of checking on results and of *asking discerning questions* is examined.

Some "don'ts": electing directors to get inexpensive "experts"; letting directors do work that belongs to the chief executive; using directors as a means of currying favor with other companies and interests; looking for "big names"; insisting that directors be large stockholders; looking on directors primarily as "watchdogs" over the management.

The authors conclude that "the functioning of boards of directors at the present time is far from perfect." However that may be, the condition will be ameliorated if the prescription of Drs. Copeland and Towl is taken as directed.

WATER FOR DIESEL LOCOMOTIVES

The problem of furnishing satisfactory water for use on Diesel locomotives is no less acute and complicated than for steam power, even though the total volume involved is so much smaller, especially in the case of Diesel freight and switching locomotives. In passenger service, the water required for train heating and steam-type air cooling is normally the same with either type of power.

Owing to space limitations, the oil-fired force-feed steam generator, commonly used on Diesel passenger locomotives, is an extremely compact automatic unit which constitutes in effect a flash boiler, evaporating most of the feedwater in a single pass through high-temperature heating coils. The sludge and mineral solids left from evaporation of untreated water tend to deposit on the inner surfaces of heating coils and cause failures. Fortunately, satisfactory methods of corrective treatment have been developed. As in steam-locomotive service, these methods are of two general types, internal treatment after delivery of water to the locomotive tanks and external treatment before water goes to the locomotive. The latter method seems to produce the best results though sometimes a combination of the two is required. In any case, the objective is to keep the heating coils free of scale, corrosion, or pitting.

Another vital use of water on Diesel locomotives is for engine cooling. The amount required is small, but unless properly conditioned, the entire circulating system is subject to scale formation, or corrosion. This is particularly true of cylinder liners, heads and blocks. To assure reliable operation of these parts in normal Diesel-locomotive operation, deionized, distilled water, or clean condensate, adequately treated with chromate-type inhibitors to prevent electrolytic action between dissimilar metals, seems to be the answer.

The storage batteries on Diesel locomotives also require the equivalent of distilled water, still another kind of water necessary for satisfactory operation of this type of power. In view of these diversified water requirements, it is fortunate that railway engineers, in conjunction with Diesel-locomotive manufacturers and water-treating experts, have developed equipment and methods which largely solve the respective problems presented. This modern water-treating equipment should be more widely used and, no doubt, installed before, rather than after, Diesel locomotives are placed in service on individual railroads.

BIG RESULTS FROM SMALL TOOLS

Could anything as insignificant in appearance as a power-driven wood auger, weighing only a few pounds, have a perceptible effect on the operations and earnings of a large railroad? Look at one of these power tools and a hand tool in operation at the same time. While a workman with a hand auger is still laboring at the first hole, the operator of a power drill will have finished several of them. Similarly, a chain saw will bite entirely through a large timber before even a good start has been made with a hand saw, while one man with an impact wrench is equal to a small gang of workmen with hand wrenches. Comparisons with other types of tools are equally striking.

It is when the savings in labor with individual tools are multiplied by the opportunities for using them that the economies become a figure of income-account magnitude. When a single gang, fully equipped with $4,500 worth of power tools, is able to show savings of $12,000 annually as compared with a comparable gang using hand tools, it is apparent that a few gangs thus equipped will do big things to maintenance expenses. This saving of $12,000 is the estimate by a bridge and building supervisory officer of the economies produced by one of his eight-man gangs.

Aside from their financial contribution, small power tools are also helpful in reducing delays to trains occasioned by bridge repairs—this work is done so much faster when the operation is mechanized. Here is just one instance—a derailed car broke every tie on a 65-ft. deck-girder span on a busy main line. Sufficient replacement ties were available a short distance away, but they were not of the right size and considerable framing had to be done. By using power saws and drills the job was finished at least two hours earlier than would have been possible if hand tools had been used.

Despite the advantages offered by these tools, observation indicates the bridge and building forces of the railroads as a whole are far from being completely equipped with them.

HIGH-PRESSURE SUPERCHARGING OF DIESEL ENGINES FOR LOCOMOTIVES

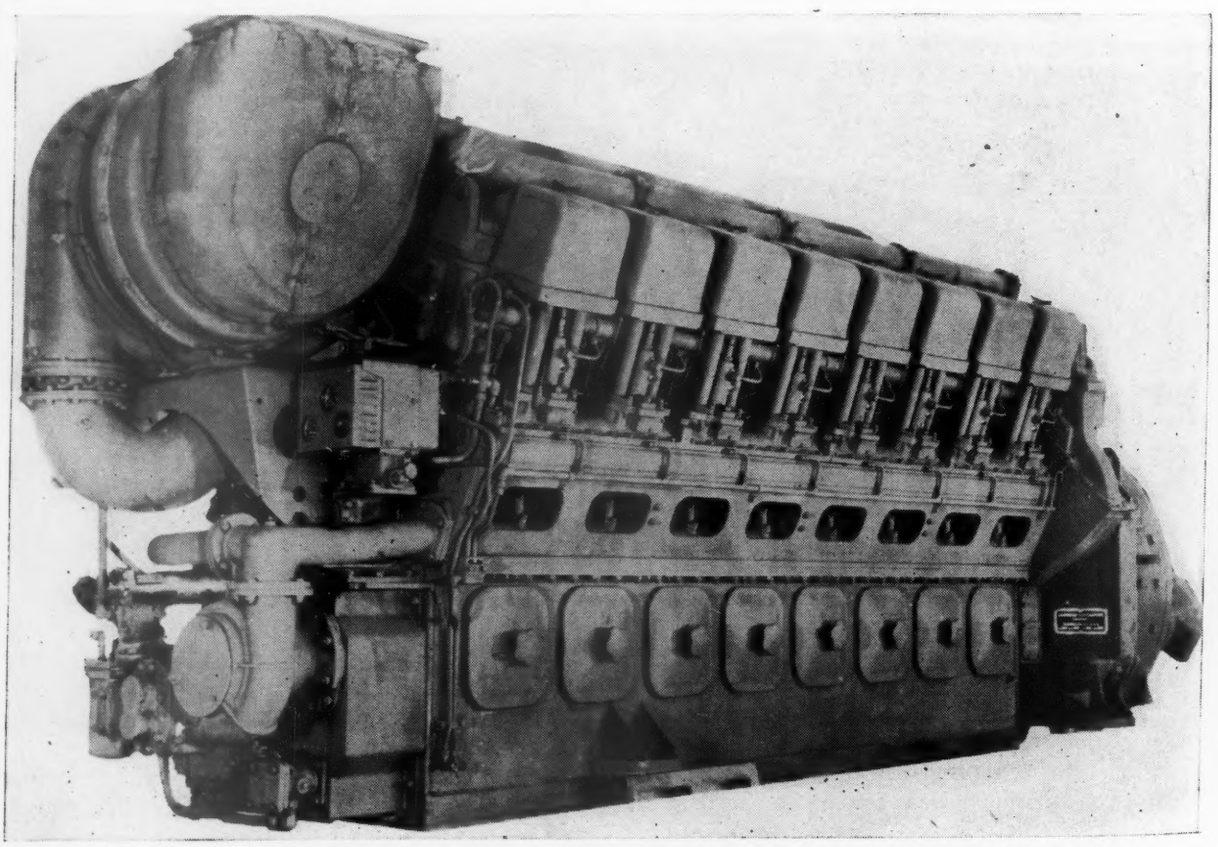
The two functions of superchargers—Limitations of exhaust-gas temperatures—Importance of high efficiency

By S. N. HEDMAN
Auxiliary Turbine Engineering Division,
General Electric Company

An average high-speed four-cycle Diesel engine for railroad main-line service has a weight of 35 lb. per horsepower, based on its self-aspirated rating. By the addition of a high-pressure supercharger this can be reduced to about 18 lb. per horsepower. In other words, the weight of the main power plant is reduced almost one-half. In a 2,000-hp. power plant, this means a reduction in weight of 35,000 lb.

There are some main-line locomotives with low-pressure superchargers which have horsepower ratios as low as 10.4 hp. per ton and axle loadings as high as 63,333 lb. per axle on passenger locomotives, with even a higher percentage of the weight supported on idle axles. With a value of 10.4 hp. per ton, a 25 per cent heavier locomotive must be used for a given horsepower output at the rail, thereby cutting down on the pay load that can be hauled. These ratios and weights clearly indicate some of the advantages of high-pressure supercharging.

Locomotives are in production by the American Locomotive Company and General Electric Company for freight and passenger service with high-pressure supercharging having a horsepower-to-weight ratio of 13 hp. per ton. On 1,500-hp. freight locomotives, this weight is all on driving axles and on a 2,000-hp. passenger locomotive where two idle axles are em-



A high-pressure turbosupercharger mounted on a 2,000-hp. Diesel engine for locomotive service

ployed, the weight ratio on driving axles is 19.7 hp. per ton. The weight on each driving axle is 57,500 lb. on the freight locomotives and 51,000 lb. on the passenger locomotives.

The supercharger also allows the engine to maintain its full horsepower rating at all altitudes reached by main-line railroads in this country. This, together with the characteristics of a Diesel-electric locomotive, gives a combination that provides high tractive force for starting, and full horsepower over a wide range of speed and altitude conditions.

This article is therefore concerned with the high-pressure supercharger that makes all this possible. Since World War I, and especially during World War II, a vast amount of development has been done on superchargers for aircraft with high supercharging levels. In aircraft supercharging, the urge has been first to maintain sea-level horsepower at high altitude, and secondly, to increase the horsepower obtained from a given weight of engine. In locomotive service the order of importance is reversed: we want, first, increased horsepower from a given size of engine and, second, we want to maintain this rating at all altitudes encountered in normal service.

Supercharging of a Diesel engine means increasing the pressure, and therefore density, of the air in the inlet air manifold, allowing a greater weight of air to be trapped in the cylinder for each power stroke, so that more fuel can be burned in each cylinder to increase the power obtained from the engine. Therefore, a supercharger consists of an air compressor and the means of driving it. The air compressor could be of virtually any type, reciprocating, rotary, positive displacement, centrifugal or axial flow.

Types of Superchargers

The purpose of the supercharger is either to increase the power that can be obtained from an engine of a given displacement, or to reduce cost of, weight of, and space occupied by an engine to be designed for a given power rating.

There are three general types which it may be in order to discuss briefly. These are:

1—Air compressor driven from the engine crankshaft or from the external source of power.

2—Air compressor driven by a turbine deriving its power from the exhaust gases of the engine, but with the turbine and compressor shaft connected to the engine crankshaft through gearing.

3—Air compressor driven by an exhaust-gas turbine, but with the rotating parts of the engine and supercharger connected only by the fluid in the air and exhaust-gas passages.

The first type is used on several aircraft Otto-cycle engines, often in series with a turbosupercharger, and frequently on Diesel engines as a scavenging blower which does but little supercharging. Because it takes power from the crankshaft or from an external source, it increases the fuel rate based on the net output of the power plant, and in general, the higher the degree of supercharging, the greater the increase in fuel rate. This type of supercharger cannot compensate for change in engine load or barometric pressure.

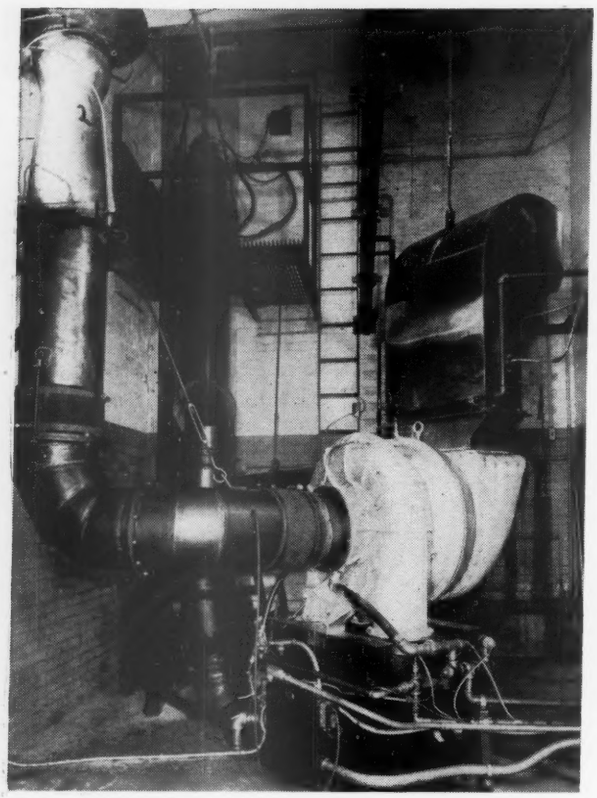
An engine together with the second type of supercharger is known as a "compound engine." The compressor is driven by the exhaust-gas turbine; if the turbine produces more power than required by the compressor, the excess is delivered to the crankshaft; if the compressor requires more power than the turbine produces, the difference is supplied by the crankshaft. With fixed ambient conditions (barometer and inlet air temperature), there is only one engine load at each engine speed for which turbine and compressor powers are in balance. At lighter loads, turbine power will be deficient, and at higher loads, it will be more than sufficient. The balancing-point load can be increased by increasing the turbine nozzle area or by increasing the gear ratio (ratio of supercharger speed to engine speed). At light loads, considerable power is required to furnish air which is not needed.

The third type of supercharger is known as a turbosupercharger. It has been used extensively on Diesel engines and on Otto-cycle aircraft engines. The only source of power for the compressor is the exhaust-gas turbine, which uses power that would otherwise be almost completely wasted. The turbosupercharger has no net power output, but produces the effect of a net power output by maintaining an air-manifold pressure higher than the exhaust-manifold pressure, and increasing the engine power to the extent that the engine is able to feel this difference in pressure on the piston on the intake and exhaust strokes of the cycle. The turbosupercharger speed is governed principally by the engine speed, the temperature of the exhaust gases and the barometric pressure. The turbosupercharger is the only one of the three types that is able to change its speed and air delivery to suit the requirements of the engine on a change of engine load or barometric pressure. Because of its sensitivity to exhaust-gas temperature, the turbosupercharger will increase its speed and air delivery when the engine load is increased and, with fixed engine load and speed, will considerably increase the ratio of air delivery to barometric pressure as the barometric pressure is decreased. The other types of superchargers maintain only a fixed ratio of air delivery to barometric pressure because their speed is a fixed ratio to engine speed.

Effect of the Supercharger on the Cycle

Diesel-engine superchargers have been built during the past few years giving up to 50 per cent increase in horsepower over the self-aspirated rating with supercharging levels on the order of 5 lb. to 6 lb. gage above atmosphere. High-pressure turbosuperchargers have been designed and put in service by the General Electric Company within the last two years, giving 100 per cent increase over the self-aspirated rating with supercharging levels of 17 lb. to 22 lb. gage above atmosphere. Such a turbosupercharger mounted on an engine is illustrated. The engine is rated at 2,000 hp. when supercharged to a level of 17 lb. to 22 lb. gage above atmosphere.

The supercharger consists of a centrifugal air compressor delivering air to the engine cylinders under pressure and driven by an exhaust-gas turbine ob-



"Bootstrap test" arrangement for testing turbosuperchargers in the builder's plant

taining its power from the exhaust gas of the engine. No governing of the supercharger is necessary at present-day efficiency levels as the energy in the exhaust gas will not generate enough power to provide an excess of air over that which can be used in the engine for scavenging and charging the cylinders. It therefore floats on the system, varying its speed in response to engine load and speed. At higher efficiency levels when obtained, even more air can be used for scavenging, or the supercharger can be geared into the engine through a fluid coupling and return net power output to the engine.

The supercharger furnishes air to the cylinders at more than twice the rate needed for theoretical burning of the fuel. The gas comes to the turbine end at approximately 1,150 deg. F. and at about 5 lb. gage lower pressure than the air delivered to the engine. This differential also provides for scavenging for the period when both the inlet and exhaust valves are open together. Approximately 20 per cent of the total air flow is used for scavenging, leaving in the cylinders approximately twice the amount of air needed for burning the fuel. This allows a very safe margin for burning of all the fuel and contributes to cooler temperatures of the exhaust gases.

The graph shows the variation of supercharger pressure and temperature with the engine speed and horsepower for average sea-level conditions. At high-altitude conditions the supercharger runs faster because the atmospheric air is lighter; the compressor generates a higher pressure ratio and pumps enough air into the cylinders to burn completely the same amount of fuel as at sea level, thus maintaining sea-level horsepower. Slightly higher turbine temperatures are encountered at high altitude.

These turbosuperchargers have been in some of the toughest railroad service in the country on Diesel-electric locomotives, running on round trips from Chicago to Los Angeles between servicing of the locomotives. Altitudes on this run are a maximum of 7,600 ft. and ambient temperatures may be as high as 120 deg. F., with resulting compressor inlet temperatures approaching 150 deg. F. On another railroad these turbosuperchargers are operating at a maximum altitude above 10,000 ft. Most Diesel engines would have the maximum sea-level rating reduced on the order of 30 per cent at this altitude, but the engines on these locomotives deliver the same power at 10,000 ft. as at their sea-level rating.

Problems of Supercharger Design

The turbine of a turbosupercharger for a 2,000-hp. engine when supercharged to a level of 20 lb. above sea level atmosphere delivers on the order of 600 hp. to the compressor. This power is obtained from the exhaust gas of the Diesel and has no detrimental effect on the efficiency of the engine. In fact, engines with high-pressure supercharging operate at equal or better fuel rates than self-aspirated engines or those supercharged at low pressures.

There are many problems involved in the design of turbosuperchargers for Diesel engines. Some of the more difficult are

1—Turbine parts must be capable of standing temperatures of 1,200 to 1,400 deg. F. while rotating at high speeds. Speeds and temperatures are not at all self-compensating, but both occur at the same time, that is in altitude operation. Highest speed is then encountered because of the lighter-density atmospheric air and exhaust-gas temperatures are also highest under these same conditions. For the high supercharging levels involved here, speeds required are on the order of 950 m.p.h. at the tip of the compressor rotor when operating at altitude conditions. Materials used in the hot exhaust-gas path do not have the same strength or life as when operating at atmospheric temperatures. Therefore, very special materials are required which maintain as high a percentage of their strength as possible at elevated temperatures. Such materials are more difficult to fabricate and machine, some being so hard that they can only be processed by casting or grinding.

Materials for such high-temperature service also have poorer "damping" characteristics than low-temperature materials. This means that if there is an impetus to cause them to vibrate they do not have as good a tendency to resist this impetus; and so they keep vibrating for a longer period before damping out the vibrations. Therefore, if there is a definite rhythmic impetus present, such as the exhaust puffs

in the gas stream, and any parts resonate at this frequency or any harmonic of the fundamental, they will vibrate continuously and fail from vibrational fatigue. It is, therefore, imperative to design all parts so they cannot be excited by any of the fundamental frequencies present, or to damp the vibration so that the amplitude is not injurious to the material involved.

2—Efficiency levels must be maintained as high as practical. The engine designer is interested in keeping exhaust-gas temperatures as low as possible, as the life of the engine is partially dependent on temperature. The supercharger designer is caught between two fires: he wants the temperature as high as possible so as to have maximum energy in the exhaust gas for driving the supercharger; on the other hand, he has fixed limits to work within, as the best materials known today do not allow going to as high temperatures as he could use to advantage in his cycle. Therefore, it is in his interest as well as in the engine designer's to have the supercharger efficiency as high as practical so a maximum of air can be supplied to the engine, first, for burning the fuel and, second, for scavenging, which cleans out the burnt gases in the cylinder and cools the engine. The amount of air furnished to the engine is in proportion to the efficiency of the supercharger: therefore, higher-efficiency superchargers mean cooler engines or higher output from the same size engine without increasing the temperature.

3—The inertia of the rotating element must be held to a minimum. The supercharger is entirely dependent on the engine for its energy and runs without any controls in the air or gas path. It is, therefore, dependent on a change occurring in the engine before it can alter its own speed. It must then "lag the engine" during transient conditions of load changes. This lag would be zero if the mass of the rotating parts were zero; and, if the mass were infinite, the supercharger would never come to a balanced condition with the engine. The supercharger designer must balance the effect of improved efficiency which may be obtained by increasing the rotor mass against the effect of the increased mass on the transient conditions of load change. He must also keep his safety factors to reasonable limits, rather than load up the rotor with margins. When the rotor mass is too great, insufficient air is furnished to the engine on load increasing changes, resulting in poor combustion and loss of power. This factor is particularly important on a switching locomotive, where the unit is being constantly accelerated and decelerated.

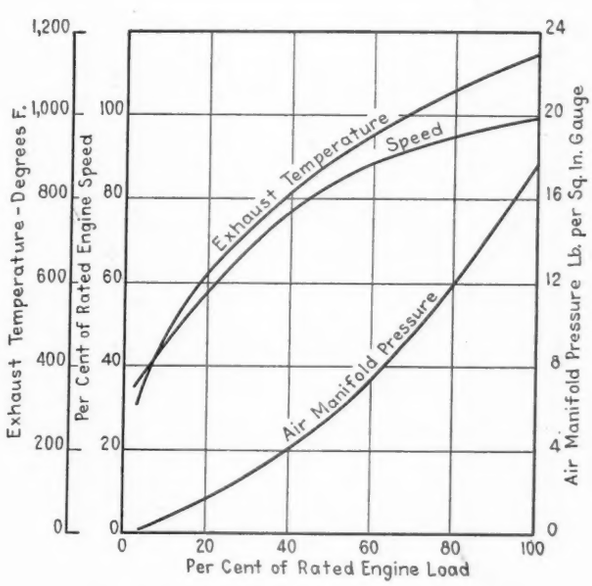
This problem dictates the use of light-weight alloys of aluminum or magnesium in the compressor rotor, as the temperatures are in the operating range of these materials. The high-pressure level of supercharging described here is approaching the limit that can be obtained at the present state of the art from a single-stage compressor. Even higher levels of supercharging are feasible from a thermodynamic standpoint by the use of multistage compressors. These, however, will introduce greater rotor masses, or inertias, and may at present prohibit the use of higher levels of supercharging unless the supercharger is geared to the engine. Gearing to the engine, of course, limits the flexibility of use of the locomotive, as it is then correctly balanced for only one elevation and load.

These problems offer the turbosupercharger designer a fertile field and leave ample room for progress towards obtaining even higher gains in horsepower from the engine as supercharging levels are elevated still further, higher-temperature materials are developed and engines are developed which can operate at higher brake mean-effective pressure.

The "Bootstrap Test"

As it is impractical to maintain Diesel engines of all ratings supercharged in the turbosupercharger factory, the test of the turbosupercharger is accomplished in a hot-gas test known as a "bootstrap test." Such a test arrangement is illustrated. The unit is started by blowing steam or air on the turbine wheel. The air from the compressor is then led to a combustion chamber where fuel is burned and the products of the combustion are used to drive the turbine. After the cycle is started, the steam or air on the turbine wheel can be shut off, and the cycle becomes self supporting. The unit can then be run from "minimum bootstrap speed" to maximum operating speed by adjusting the amount of fuel burned in the combustion chamber. The units in this test are run up to the maximum temperatures on the turbine encountered in service and observations made to check the general performance, efficiency, vibration and lubrication.

High-pressure supercharging is contributing to the building of locomotives for freight service with the correct weight on drivers and none supported on idle axles. In high-speed passenger service, idlers are used principally to obtain the stable characteristics and tracking qualities of six-wheel trucks and to reduce axle loading.

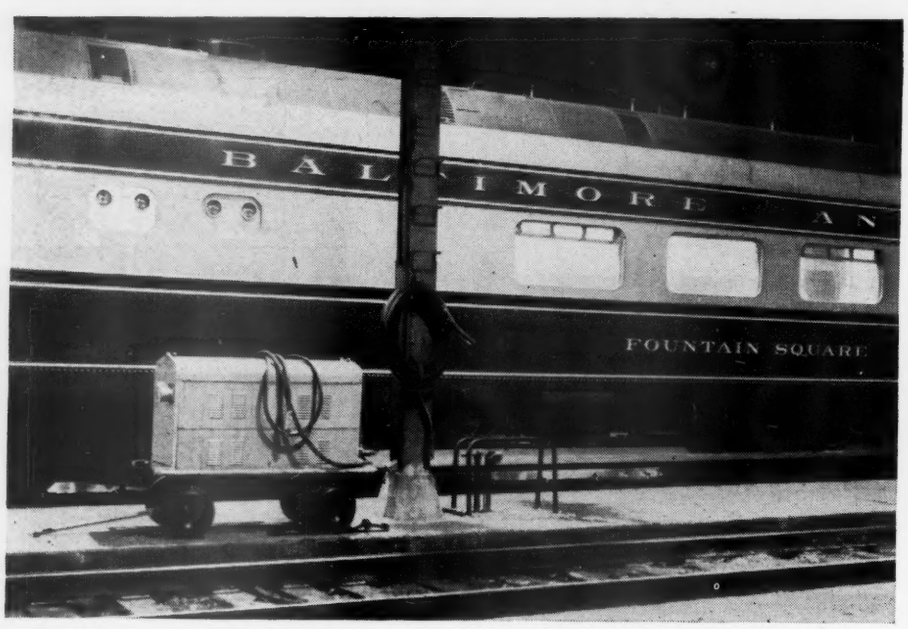


Variation of supercharger pressure and temperature with engine speed and output

PRECOOLING AND BATTERY CHARGING

Cincinnati Union Terminal installs electrical facilities which provide good light for night work and adequate power for precooling and battery charging

The service yard in the daytime showing the arrangement of lighting and transformer poles



A car in the service yard showing how it appears at night under the illumination supplied by the overhead lighting system—One of the m.g. battery charging sets is shown on the platform

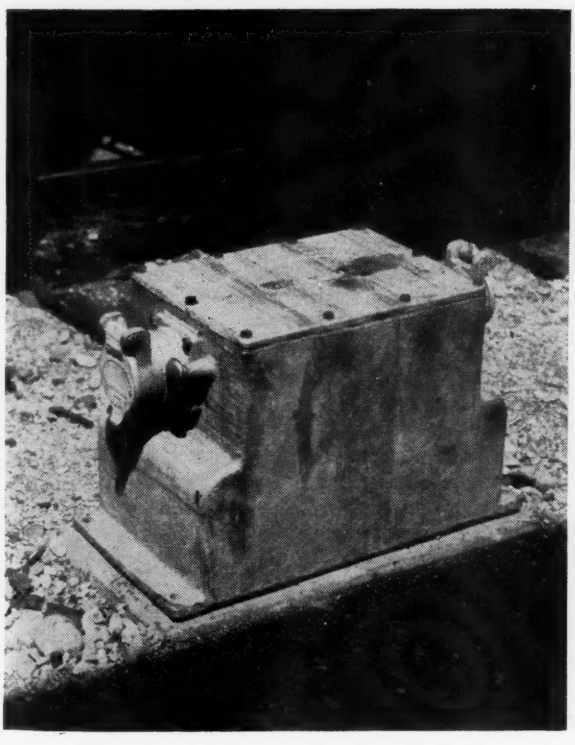
New car service facilities have been made available to its seven railroad tenants by the Cincinnati Union Terminal. They include an illumination system in one-third of the service yard which is expected materially to facilitate the work done at night. An adequate arrangement of standby electrical power outlets for precooling and battery charging has been made available both for this portion of the service yard and the station tracks. There are six regular service tracks in the revamped portion of the yard, and seven service platforms. There is also a seventh track outside one of the platforms which is used to store protection cars for added train service requirements.

Lighting Installation

The yard is lighted by 104 lighting units mounted on H-section columns and mast arms. The tracks are on alternate 20-ft. and 16-ft. centers. This spacing results in alternate wide and narrow platforms. The columns are spaced at 80-ft. intervals on the wider platforms. Lighting units on the columns light the wider platforms, and mast arms mounted on the poles support lighting units over the narrower ones. Mounting heights of the units is 22 ft. The columns are offset from the center of the platforms to allow a wide aisle for trucking, and all lights are over the centers of the platforms. After five months in service, without cleaning, lighting measurements showed illumination intensities of 0.24 to 4.9 vertical footcandles on the sides of the cars, and 1.0 to 4.3 horizontal foot-

The yard as it appears at night

Left—One of the standby power outlets as it is used above ground between the station tracks. The plunger operates the breaker. Right—One of the standby power outlets as installed in the gutter beside a yard platform



candles on the platforms. Half of the lights are 400-watt, 20,000-lumen mercury vapor lamps, and half are 750-watt incandescents. The two types are mounted alternately, and all are in Westinghouse O.V. 20 top-mounted fixtures. The normal cleaning period will be every three months.

There is also a 1,000-ft. inspection pit in the yard which is lighted by forty 200-watt incandescent lamps and reflectors on each side of the pit. There are

The 1,000-ft. inspection pit

120-volt utility receptacles in alternate lighting niches for portable extension cords for lights and small tools. Similar outlets are placed on every other column in the yard.

Precooling and Battery Charging

The standby power outlets in the yard consist of 3-phase, 240-volt, a.c. outlets, placed 80 ft. apart in the gutters on either side of the track platforms. The cast metal outlet boxes are protected by covers and are drained. Each box contains a 100-amp., Westinghouse Type F, 3-pole, no-fuse, quick-acting, De-ion circuit breaker and a 100-amp., Albert and J. M. Anderson 4-pole type F-4 receptacle. There is space for a second receptacle and breaker if wanted.

The standby power arrangement for station tracks is similar to that in the yard except that outlets are located between tracks, above ground, instead of alongside the platforms. There are 20 station tracks.

Battery charging, other than that done by motor-generator sets on the cars, is done in the yard by seven portable motor-generator type chargers, and in the station by nine portable, rectifier type chargers. There will also be three portable gasoline-engine-driven 150-volt, d.c. power, or 30 kw. of 220-volt, 3-phase, 60-cycle, a.c. power.

A feature of the power supply system is that primary power feeders are run parallel with the tracks on the east and west side of the yard, and on the east and west side of the station tracks, while secondary power feeders from a number of transformers are run beneath the tracks underground. The two primary circuits may also be connected in a loop at the distant end of the yard, so that power to any transformer may be supplied from either side. With this arrangement, a feeder or a transformer failure can affect only a small number of power outlets or lights, and will never deprive a train of standby power, or a platform of more than every other light.

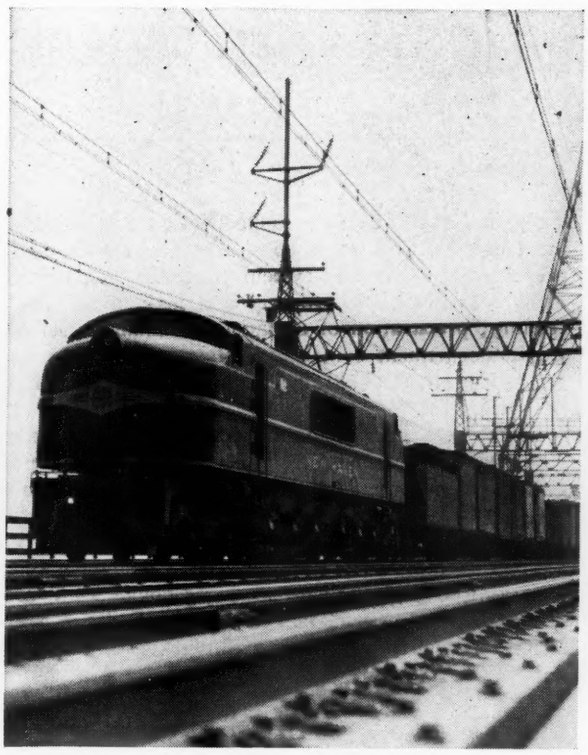
Train Servicing

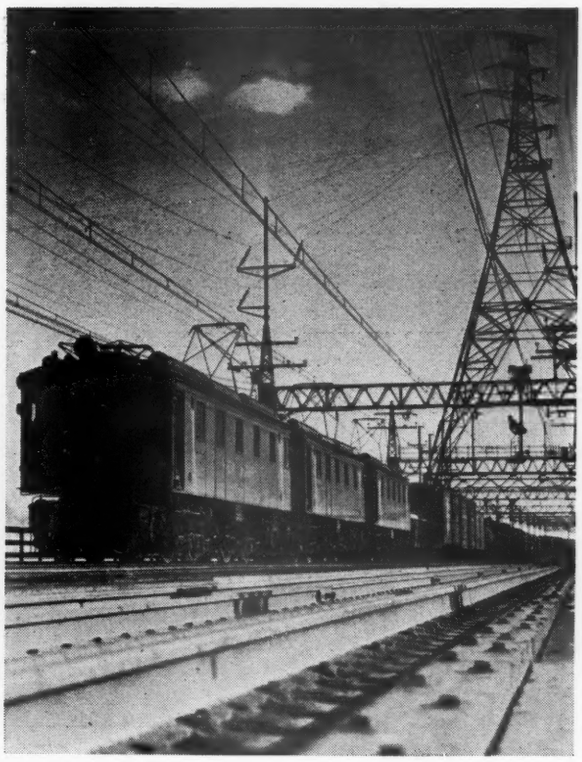
Incoming trains are moved from the station to the service yard tracks where they are first placed over the 1,000-ft. inspection pit. When they have passed inspection, they are moved to the servicing tracks where they are cleaned and otherwise serviced. Servicing includes light repairs to electrical equipment, battery charging and testing of air-conditioning equipment. Some precooling is also done in the yard.

After the work in the yard is completed, and provided there is track space available at the station, the trains are moved to the tracks in the station. In some cases, trains are broken up and remade, and in others they are kept intact as complete trains.

Cars at the station are precooled in warm weather and batteries are charged, if necessary. At times, precooling and charging are carried on simultaneously, power from a second 3-phase, a.c. outlet being used with a portable battery charger.

Engineering and construction work for the lighting and standby power installation was done by the Harry F. Ortlip Company, Philadelphia, Pa., in conjunction with Cincinnati Union Terminal, Westinghouse Electric Corporation, and the tenant railroads' engineers.





New Haven's traffic research gives it the information necessary to develop volume traffic in a highly competitive, compact area

FACTS BEST WEAPON FOR CAPTURE OF POTENTIAL TRAFFIC

New Haven's basic research program uncovers data necessary if business is to be obtained in country's most competitive area with best use of funds

An article entitled "Railroad Research — a Basic Approach" appeared in *Railway Age* of September 11, 1943. Its theme was that railroads can go after potential, available profitable business only if they know what the total market is; what their competitors are doing in it; what the public actually wants in return for its patronage; whether the railroad can hope to increase its share of that patronage; and what improvements in equipment and service will most readily win the public, with the least proportionate expenditure of funds.

The New York, New Haven & Hartford was described in *Railway Age* of June 12, page 43, as suffering perhaps more than any other major railroad from natural operating disadvantages and the competition of non-railroad carriers. In the article "Railroad Research — a Basic Approach" it was further stated: "Research gives management the facts of the matter, properly interpreted, which management can combine with its knowledge, understanding, and reason to reach a decision. Although research may not be the panacea for railroad problems, properly utilized it can be an effective tool to aid management in protecting or increasing the net earnings of a railroad."

The *traffic* research program of the New Haven, in general, is along the following lines:

"(1) Studies to determine by types or classes of traffic and districts the amount of traffic available for transportation compared with railroad traffic, to indicate where the railroad is strong and where it is weak or greatest potentialities lie.

"(2) For each type of traffic or district where the railroad is weak or greatest potentialities lie, make:

(a) A market survey to ascertain why traffic is not moving by rail and what the patrons require in prices and service.

(b) A special economic study of district or class or traffic to evaluate properly where transportation fits into the picture.

(c) An analysis of conditions of the transportation agencies competing for the business.

The "Comet," one of the country's pioneer streamliners, was placed in service in June, 1935. Shortly thereafter, 34 per cent of its passengers stated they had been won over to the train from private automobiles

(3) Based on (2), determine standards of price and service required if public is to use rail.

(4) Application of mechanical, engineering, operating, rate, and other research to determine ways and means of meeting these requirements profitably."

Wide Range of Projects

More than 90 major projects have been completed under the program since 1944, about 50 being on freight traffic and the remainder on passenger. Market studies include not only analyses of commodities (such as potatoes, petroleum, sponge iron, coal and cotton textiles) but also traffic data on specific points of origin and destination to determine whether, for example, the railroad should increase its service and solicitation or withdraw altogether. Several studies of overhead traffic and competitive routes made it possible for the railroad to relocate and extend its off-line solicitation offices with maximum effectiveness. A special study of a proposed pipe line from tidewater to the interior of Connecticut enabled the road to weigh the situation intelligently and to evaluate its own rates and service and determine whether to head off the potential competition or, because of cost factors, abandon the traffic. Studies now under way of less-than-carload operations in outlying areas are giving management all the facts with which to weigh the costs of present or revised service against income from the traffic handled.

While the bulk of the department's work pertains to market studies of this nature, it has been called upon for numerous widely varied special tasks as, for example, an analysis of sales training in other industries for possible application to the New Haven's staff; a history of the railroad for use in sales training; a study and report with recommendation for establishment of an I.B.M. sales control system on the road; preparation of a new system timetable map giving more data about the property and making for easier reading; preparation of a statistical handbook for the traffic department containing 80 statements and corresponding charts of traffic trends, annual and monthly, since 1928.

In the passenger field, the department has, among other projects, issued a complete merchandising program, which contains subreports on sales force, sales and market analysis, and sales quotas, respectively. As a follow-up, a report outlining a training program for passenger traffic men was prepared. Exhaustive separate reports on particular passenger routes were produced giving all the data necessary to back up a decision to reduce exisiting service or to go after potential traffic with fruitful improvements.

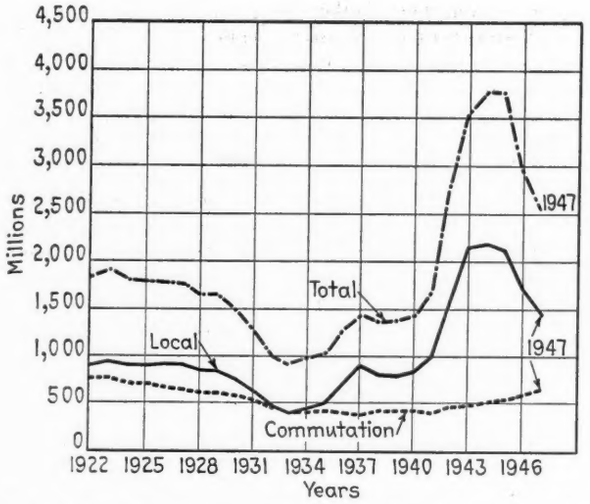
Proposals initiated on the railroad or suggested by outsiders of such innovations as commissions for ticket agents, prepaid orders for tickets, promotion of group travel, and station escalators were duly studied and recommendations for action set forth. As a result of a survey by personal interview of passengers on two through trains added in recent years, the department determined that the new revenue attracted specifically thereby warranted their continued operation.

In view of the New Haven's geographical position and the traffic characteristics of southern New England, the work of the traffic research and development department in assessing the influence, strength and weakness of the railroad's rivals has been of particular importance. Registrations of passenger automobiles in the three southern New England states — Connecticut, Rhode Island and Massachusetts — rose from 359 thousand in 1920 to 1,472 thousand in 1946, and truck registrations jumped from 85 thousand to 232 thousand. Owing principally to the impact of the private automobile, *per capita* rail riding between southern New England and New York City dropped from a high of 189 mi. in 1920 to 112.5 mi. in 1930 and to 101 mi. in 1940, though the railroad, by better service and revisions in fares, was able to lift the average to the latter, in a peacetime year, from a low of 75 mi. in 1935.

Just prior to World War II, the railroad handled 39 per cent of total l.c.l. and less-truckload traffic moving in its territory for distance of more than 100 mi. — i.e. 39 per cent of its rough potential. It is estimated that in the years 1938-40 motor trucks were depriving the New Haven of potential annual l.c.l. traffic of about 1,750,000 tons.

Water Rivalry Everywhere

The New Haven not only is vulnerable to motor competition to an unusual degree because of the compactness of its territory and nature of its traffic, but



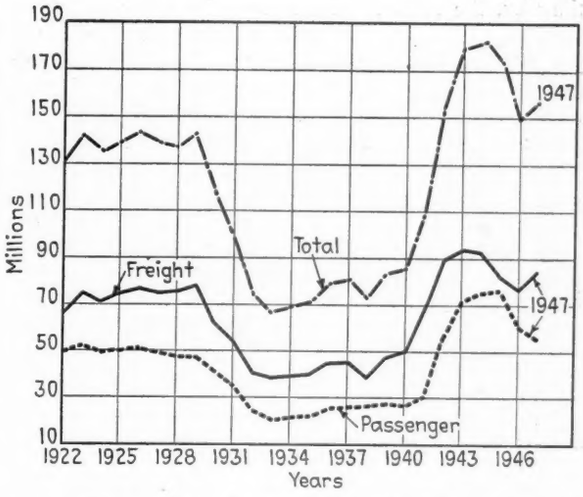


Fig. 1 (left)—Revenue passengers carried one mile on the New Haven over 25-yr. period. Fig. 2 (right)—Operating revenues of the New Haven 1922-1947

faces an equally important handicap in the fact that no point of major importance on its lines is more than 50 mi. from navigable water; the bulk of population and industry are concentrated close to the seacoast. As a result, the heavy bulk traffic which the trucks would not take is hotly pursued by coastal water carriers, the impact of which waxed increasingly great from 1920 to the suspension of coastwise navigation because of World War II.

From 1920 to 1929, traffic of domestic waterborne freight in and out of southern New England increased at a greater rate than the railroad's business and came to exceed it. During the depression waterborne tonnage ranged from 1½ to 1¾ times the railroad's traffic. Some of this increase in boat traffic was due to the purchase and improvement of the Cape Cod canal by the United States in 1928, at a cost of $51½ million, and removal of all tolls.

Perhaps more important was the growth of the petroleum products traffic which entered New England almost exclusively by water, and diversion of coal trade from all-rail routes to collier and truck or rail combinations. In 1940 petroleum accounted for about 40 per cent of waterborne tonnage in and out and coal nearly another 40 per cent.

After the United States entered the war, submarines drove off all our outer coastal traffic. Petroleum shifted to overland symbol trains on the rails. Bituminous coal, which had arrived largely by water, moved overland by rail. As a result, the New Haven handled nearly 3 times as many tons of petroleum products and more than twice as many tons of all-rail soft coal in 1942 as in 1941.

While water competition for general freight has not returned in full force since the end of the war, the colliers and tankers are back. Acting alone, about the most the railroad can hope to salvage from its lost traffic in fuels is the short haul from tidewater to the interior; for this it must vigorously compete with contract and common carrier trucks.

A detailed research report makes clear that the railroad's loss of coal traffic is the result of factors over which it has no control:

The railroad was dealt a triple blow. First, total bituminous coal receipts by all means of transport in southern New England declined six per cent from 1928 to 1941 because of loss of market to oil fuel. Second, all-rail tonnage, originating largely in Pennsylvania, was superseded to a great extent by waterborne coal from the Virginias, on which the New Haven received only a short haul, if any, and much of which it lost to the trucks eventually. Third, both bituminous coal and oil replaced anthracite coal to a great extent for home heating; on anthracite the New Haven had received a maximum all-rail haul. Hence, the railroad lost the full amount of tonnage decrease attributable to the shrinkage in the coal market, plus the greater part of the remaining tonnage shifted to tidewater competition.

Its revenues from bituminous coal declined 38 per cent from 1928 to 1941 and its tonnage 36 per cent. As a result of diversion to trucks, all-rail tonnage declined 31 per cent, while ex-tidewater (i.e. short haul from vessels to inland consumption points) declined 49 per cent, in the face of an increase of 3 per cent in total tonnage of waterborne coal receipts. Bituminous coal accounted for but 8.8 per cent of total New Haven tonnage and 4.2 per cent of total revenues in 1941, compared with 12.6 per cent of tonnage and 6.2 per cent of revenue in 1928.

Loss of Oil Traffic

From 1928 to 1941, consumption of petroleum products in southern New England increased 220 per cent. During the same period, petroleum traffic on the New Haven declined 41 per cent in tonnage and 66 per cent in revenue. In short, the road lost a great part of its all-rail movement of petroleum traffic and much of its ex-tidewater business in a period when that trade was increasing greatly. Since 1941 the loss of this traffic has been accelerated. During

the war, the New Haven, along with other railroads, was required by government order to refuse transporting petroleum products for short hauls and use available equipment for the long-haul overland traffic from producing areas. As was expected, the latter traffic disappeared almost completely with the passing of the war emergency. But the New Haven has not yet been able to recapture that part of the ex-tidewater business which it had enjoyed before 1942, even after the federal regulations were withdrawn, due to the entrenched position secured by the trucks in the war years.

The traffic research and development department has made a comprehensive study of the petroleum situation in New Haven territory with a view to facilitate the recapture of substantial portions of petroleum traffic.

Overhead business, in most cases, is good profitable freight for a railroad because it requires no initial or final terminal handling. This is especially true for a short-haul carrier like the New Haven. Unfortunately, the road, because of its geographical situation, is not too well located to secure overhead traffic. Nevertheless, its management has succeeded well in developing this desirable business by intensive service and sales efforts, as the following statistics of revenue tons (in millions) indicate:

Year	Local	Interline Forwarded	Interline Received	Overhead	Total
1930	5.4	2.9	15.6	1.8	25.7
1935	3.2	2.1	11.4	1.4	18.1
1940	3.4	2.5	13.6	1.8	21.3
1947	3.5	4.5	17.5	3.0	28.5

Less-Carload Traffic

The New Haven derives about 18 per cent of its total freight revenues from less-carload traffic, compared with 7 per cent for all Class I roads. The revenue from l.c.l. traffic for the New Haven declined 8 per cent from 1928 to 1943, while the l.c.l. revenue for the railroads in the eastern district declined 25 per cent during the same period.

Due to increases in wages of labor and increased pickup and delivery costs, together with the fact that the New Haven is a short-haul carrier, the revenue derived from l.c.l. traffic at present is not sufficient to offset the cost of handling that traffic. Approximately 82 per cent of the revenues of the New England truckers is derived from l.c.l. type freight. The motor carriers concentrate on the "cream" of the freight, with a density of 20 lb. or more per cubic foot and moving between points in considerable volume. The railroad provides pickup and delivery service at over 100 points on its lines, and at 78 per cent of these points the road handles three times as much tonnage as the truckers. However, this 78 per cent of the more than 100 points were so-called outlying stations which are not heavy tonnage producers. At 22 per cent of the points, which are the major tonnage producing stations, the trucking companies originated and terminated twice as much traffic as the New Haven at those same points, and the tonnage to and from these stations represented 96 per cent of the truckers' total traffic.

The trucking operation of its subsidiary New England Transportation Company was started in 1929 — one of the first railroad highway services in the country — and now blankets the road's territory with both rail-substitution (popularly called "rail-saving") and truck common-carrier services. In connection with fast manifest trains, N.E.T. rail-saving trucks are coordinated to furnish expedited service to all points. In 1947, N.E.T. handled a total of 445,710 tons of freight.

Trailers-on-flat-cars grew in popularity during the war and now utilize 65 specially equipped flat cars nightly. This type of service is steadily being expanded. In 1944, this service is estimated to have saved 11,317 over-the-road highway trips, representing 2,131,081 truck miles, and saving 532,770 gallons of gasoline — a considerable contribution to the war effort when gasoline, rubber and vehicles were in short supply.

Fig. 1 shows the trend of passenger traffic on the New Haven for the past 25 years. Comparison with all Class I roads shows that the New Haven's passenger business declined less sharply than that of the country as a whole during the Twenties. This record was achieved in spite of most intense competition and a short average haul.

Passenger service revenues in 1947 accounted for 44 per cent of total operating revenues, a fact which makes it necessary for the New Haven to do more than other roads to keep and expand that portion of the passenger-carrying business which can be made

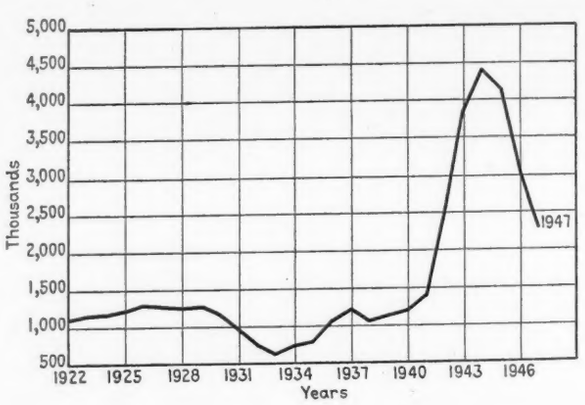
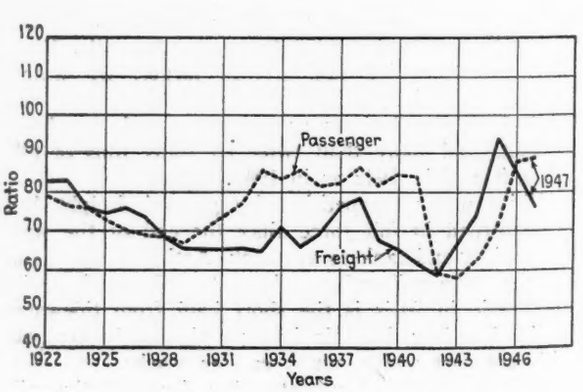


Fig. 3 (above)—Through rail passengers between New York and Boston, 1922-1947. Fig. 4 (below)—Operating ratios of both freight and passenger services on the New Haven fluctuated according to traffic volume



The New Haven developed special passenger business to a high degree during the depression. Excursion revenue reached a peak of $1,196,111 in 1935, when it was 5 per cent of total passenger revenues

to pay. The importance of, and trend in, freight and passenger revenues on the line for the period 1922-1947 are illustrated in Fig. 2.

Approximately 85 per cent of New Haven system passenger revenues is derived from passenger traffic on the Shore Line between New York and Boston and the New York-Springfield line. The Boston suburban service has declined materially since 1920 compared to the New York traffic of the road, which has increased substantially. With reasonable increases in commutation fares related to current costs, it is believed that suburban service in the New York area might be operated without further serious loss. Most other very short haul local passenger traffic has been lost irrevocably.

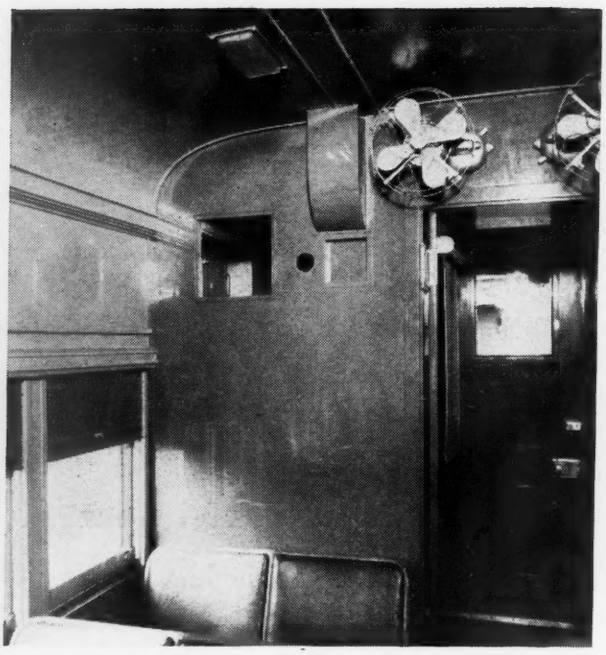
The long-term trend in the New York-Boston (229 mi.) traffic of the New Haven has been one of growth, despite intense bus and air competition and good highways and "freeways" for motorists. Fig. 3 shows the spectacular growth of the number of through rail passengers between the two cities from 1922 through 1947.

Analysis of confidential figures by the railroad's research staff showed unquestionably that, despite subsidized competition, the railroad can increase its revenue and earnings by carefully-calculated changes. An example is the "Comet," one of the earliest lightweight, articulated Diesel-powered streamliners in the country, placed in service between Boston and Providence (44 mi.) with five express non-stop round-trips superimposed on a daily steam service of 21 round-trips. A questionnaire of "Comet" passengers revealed that 34 per cent had used private automobiles previously and 12.4 per cent, bus service.

A study of passenger traffic has shown clearly the effect of service improvements *on routes where potential volume justifies.* Scheduled plane service between New York and Boston started in 1929. Until 1940, the per cent increase each year of plane traffic on this route was well in excess of that for air lines as a whole. In that year, however, the New Haven effected what it described as "the greatest improvement in a single timetable in the history of the company." Three round-trips were added to the 11 already run, giving hourly departure from both New York and Boston from 8.00 a.m. to 7.00 p.m., and reducing the average running time to 4 hr. 45 min. The "Merchants Limited" was speeded up and the "Yankee Clipper" opened to coach passengers and taken off the extra-fare list. The result: The number of through rail passengers in 1941 was 25 per cent greater than in 1939. At the same time, the year's increase in passengers on the line dropped from 51 per cent in 1939 to 11 per cent in 1941.

Figure 4 shows how the freight and passenger operating ratios of the New Haven fluctuated in accordance with "good" and "bad" years.

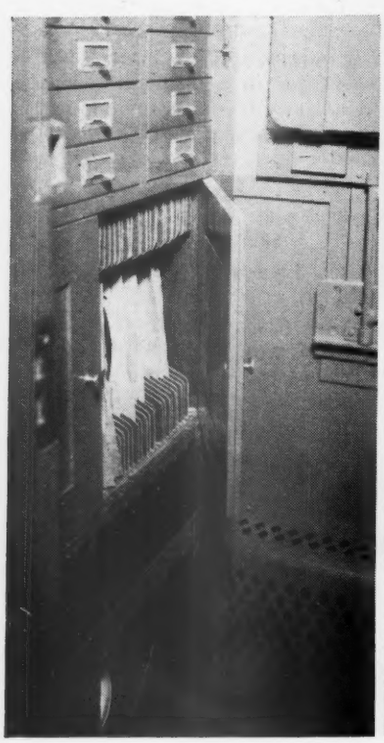
The New Haven is convinced that a well-staffed traffic research department can produce the information which will enable it to know, first, whether volume exists or can be encouraged, and, second, what the railroad must do to turn it into profitable revenue.

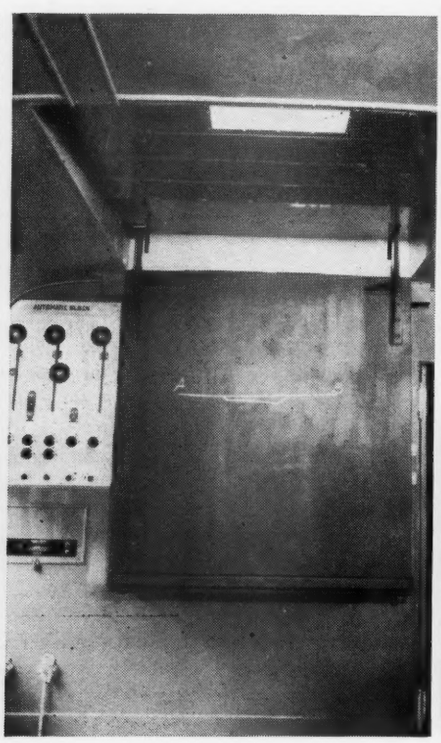


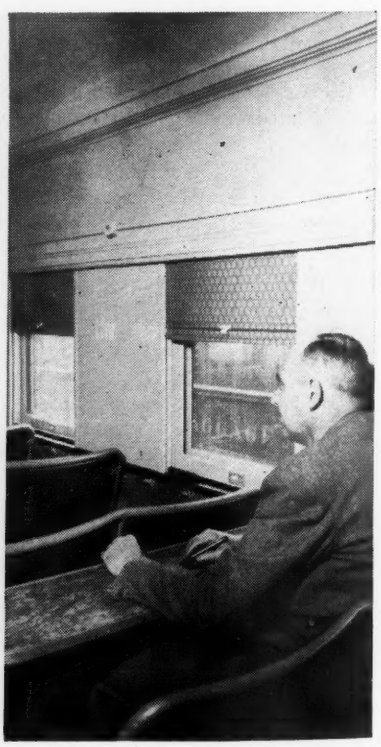
The safety car seats 60 persons. Separate projection room (right) is at the rear of the car

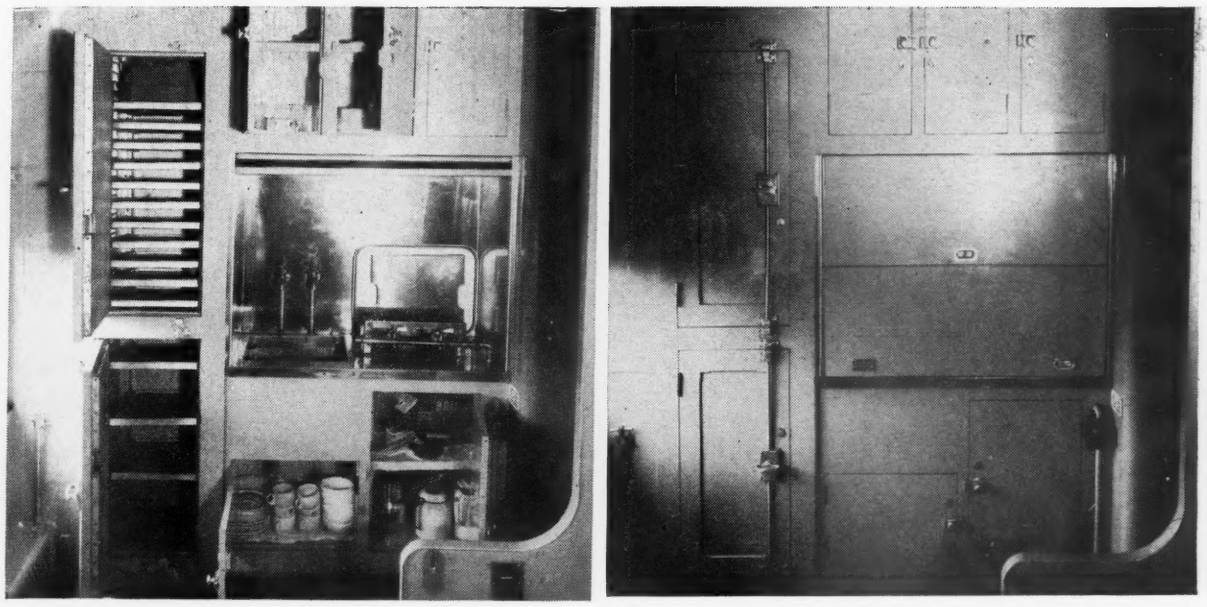
ALL-PURPOSE SAFETY CAR ON CANADIAN PACIFIC

The interior of the projection room (left) provides space for indexing films and records. A counterbalanced blackboard (center) covers the translucent slide and motion picture screen if desired. Shown also is the panel for signal indications. Ten removable tables (right) are provided for use in rules examination









A compact kitchen occupying only 17 in. of the longitudinal length of car is available for emergency use. When closed the kitchen is out of mind and out of sight

Two "safety theaters" on rails, equipped with every known device for visual education, are in constant service on the Canadian Pacific for teaching safety to employees, their families and, in some instances, to the general public. So well equipped and comfortable are the cars that they have been utilized in spare hours to bring recreational motion pictures to railroad employees and their friends at remote towns in the "North Country" where ordinary means of entertainment are not available.

One of the all-purpose safety cars has been in use in the Eastern region of the road since September, 1946, while the other was placed in service in the West in December, 1947. The former car was visited by more than 22,000 employees during 1947. Both cars, formerly troop hospital units, were completely redesigned and equipped in C.P.R.'s Angus shops at Montreal, Que. The concept of the cars originated with N. R. Crump, now system vice-president. General requirements were worked out by J. C. McCuaig, general safety agent for the Eastern region, under the direction of H. B. Bowen, C.B.E., chief of motive power and rolling stock.

The safety cars are equipped with every known means of visual education for "tailored reception" by 60 persons at a sitting. Cars are completely self-contained for traveling personnel comprising a rules instructor as permanent car director, together with the safety agent of each district through which the car passes. It provides not only complete sleeping quarters but also an emergency kitchen which occupies only 17 in. of longitudinal space.

Among the many visual educational devices with which the car is fitted are sound-movie equipment, a two-way public address system, lighted demonstration signal panels providing every type of indication existing or contemplated in the foreseeable future, and a movable blackboard with special lighting. Since the car is also used for rules examination, it is equipped with ten collapsible writing tables. An interesting feature of the public address system is the provision of 15 extra hand microphones distributed around the car so that members of the class may address the group from their places. The instructor's position is equipped with a cut-out switch.

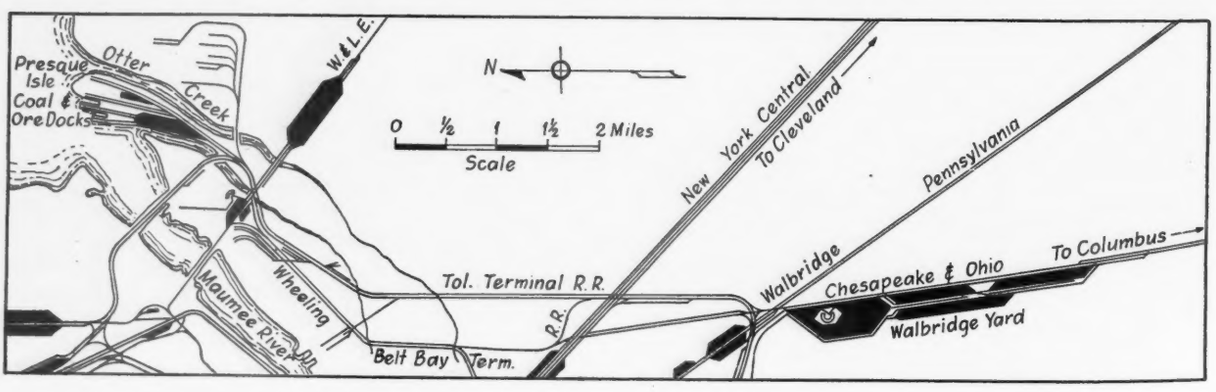
Motion pictures are projected on a screen from a closed projection room at the extreme rear of the car, which contains shelves where slides, records and films may be indexed. There is additional space for a recording turntable. The projectionist may operate the lighting and public address system for the entire car from his chair behind the projection machine. There is provided also a new type translucent screen used for slides which are projected from behind, so that the instructor may remain at the front of the audience. The slide screen is used principally to flash operating rules governing movements in response to automatic and interlocking signal indications reproduced on the signal panels which flank it. By the combination of these two devices, each class member is given the indication and the rule governing it, simultaneously.

Three sources of electric power are provided—one from an axle-driven generator providing ordinary 30-volt direct current; another by plug-in to permanent line wires; and the third from a propane-gas-operated generator built in the car. These sources provide adequate current under all conditions.

A forced-draft ventilating system with a high-powered exhaust fan insures a change of air every two minutes. To aid sound effects, acoustic material has been installed between the car's roof and the perforated interior ceiling. Special blinds black out the car and a bank of floodlights provide ample illumination.

The westbound classification yard at Walbridge as seen from a point on the hump after it had been mechanized by the addition of car retarders, power-operated switches and power and hand-operated skates

Two of the three low-level coal dumpers at Presque Isle



This map shows the location of Walbridge yard with respect to the coal yard and ore facilities at Presque Isle

IMPROVEMENTS SPEED COAL AND ORE TRAFFIC

Yards and other supporting facilities for the Chesapeake & Ohio's docks at Presque Isle on Lake Erie are being enlarged and modernized to keep pace with increased demands

At a cost of $3,500,000 the Chesapeake & Ohio is pushing an improvement and expansion program involving its Walbridge yard and Presque Isle docks near Toledo, Ohio, which is designed to expedite the handling of coal through the yard to the docks for dumping. Improvements made to date have resulted in an increase of 66 per cent in the rate at which cars are classified. The faster handling of coal cars is, in turn, reducing the time required for dumping coal into lake vessels and thus the turn-around time for coal cars. It is expected that the program, covering 15 separate projects, and also involving the company's ore-handling facilities, will be completed before the end of the 1948 shipping season.

Coal dumpings at Lake Erie docks by the Chesapeake & Ohio in 1947 approached 17,000,000 tons, a new record. Except for interruptions occasioned by labor disputes early in the season, dumpings in 1948 have kept pace with those of last year. In handling the unprecedented volume of coal traffic last year some delays were experienced in moving cars through the Walbridge classification yard to the company's three low-level coal piers at Presque Isle, about six miles to the north. It was to correct this situation that the current program was started in 1947.

The largest single project embraced in the improvement program is the mechanization of the westbound hump and classification yard at Walbridge, which was completed on March 1 of this year at a cost of $1,328,270. This work, which involved moving the hump 300 ft. to the east, included the installation of 15 electro-pneumatic car retarders, 35 power-operated switches and 106 power and hand-operated skates to stop cars not properly retarded. The reloca-

Receiving tracks at Walbridge yard, to which two new tracks have been added in the improvement program

tion of the hump involved the handling of 240,000 cu. yd. of earth. As part of the mechanization program a compressor and power station for the operation of the switches and retarders was constructed, and a pneumatic tube system for handling orders installed.

Auxiliary features of the mechanization program included the construction of three new towers—designated A, B, and C—from which the retarders, switches and some skates are controlled. These towers, designed by the company's engineering department, are constructed largely of concrete and each has a full-height panel of glass blocks in the rear wall to provide lighting for the stair well. The operator's room at the top of each tower is enclosed on three sides by polarized glass affording a full, non-glare view of the humping and retarding operations. The entire design of the towers, including an outside platform below the operator's windows, results in "modern" appearance.

A new office for the yardmaster, located alongside the hump, also has been built at Walbridge yard. The control towers and the yardmaster's office are connected with each other by a public address system.

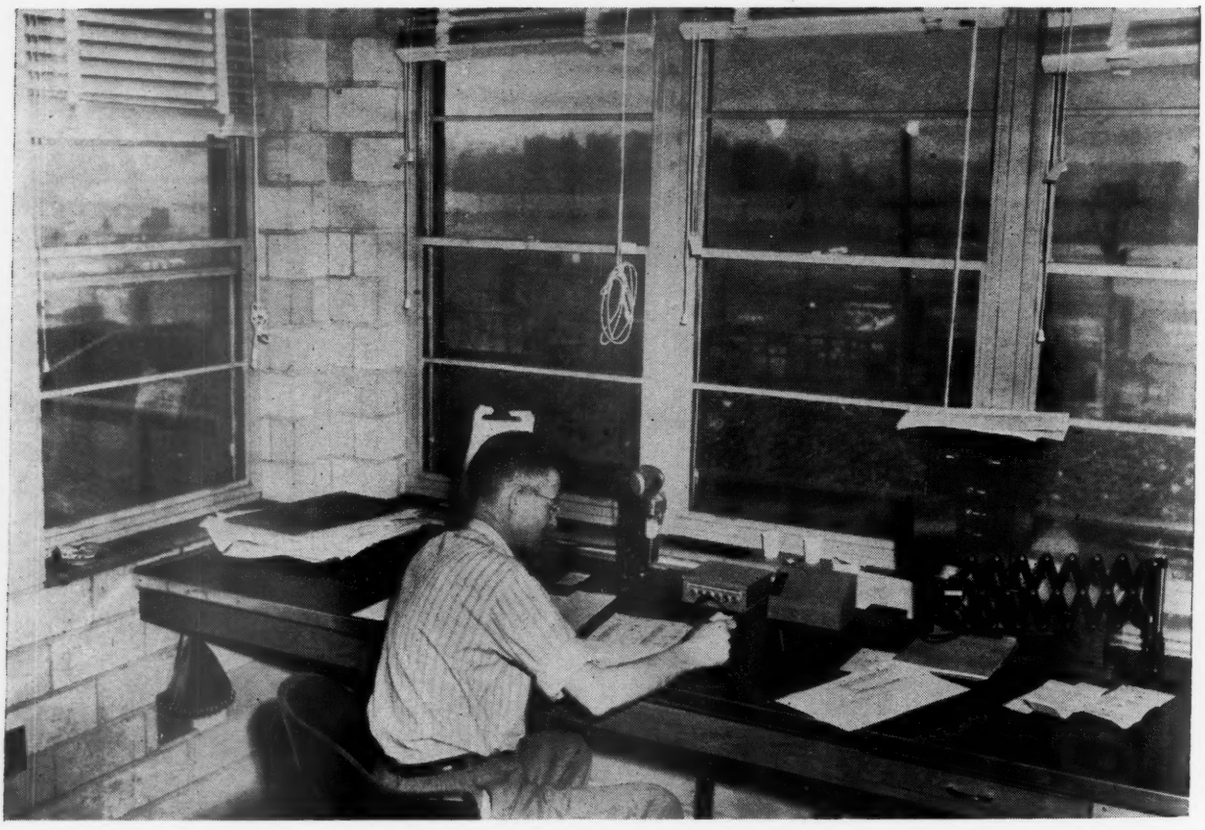
Humping Rate Increased

Mechanization of the yard has increased the rate at which cars are moved over the hump from three cars per minute to five per minute. Another benefit that is anticipated is a material reduction in car damage which during the past five years, when cars were manually controlled, amounted to $20,000.

The second largest project in the improvement program is the expansion of the trackage in the westbound classification yard. Before the present project was undertaken this yard had 53 tracks having a total length of 106.5 mi. and a capacity of 9,000 cars. Thirty-five of these tracks are used primarily for assembling approximately 400 different consignment classifications of coal handled during the shipping season.

In the expansion project 17 additional tracks, totaling 8.5 mi. in length, are being constructed in the westbound yard at an esitmated cost of $1,149,870. Two of these tracks, to be used as receiving tracks for coal trains incoming from the mines, were placed in use on May 1, 1948, bringing the total number of receiving tracks to six. The other 15 new tracks, to be used for classification purposes, will be constructed alongside present classification tracks as soon as a fill of 141,00 cu.yd. is finished. These tracks are expected to be completed by September 30 of this year. For controlling car movements to these additional tracks, which will be equipped with electro-pneumatic retarders, a fourth control tower is to be built.

With the new trackage the westbound yard will have 68 classification tracks totaling 115 mi. and having a capacity of 10,186 cars. Fifty of these tracks will be available for the classification of coal cars. Other new trackage to be built includes two addi-



Yardmaster's office in the new building alongside the hump at the westbound Walbridge yard

tional pull-in tracks, which are to be constructed in the eastbound yard at Walbridge at a cost of $84,500. These additions will give the yard a total of 19 pull-in tracks, and are expected to help speed the movement of empty cars back to the mines.

The improvement program at Walbridge embraces a number of other projects on which work has not yet been started. Among these is one involving the extension of 10 stalls in the existing 18-stall enginehouse, replacement of the sandhouse, and rearrangement of the engine terminal tracks, at a total cost of $261,900. This work will facilitate the proper care and servicing of an increased number of larger locomotives.

Other projects not yet started include a new yard office building, to cost an estimated $32,000; a new locker building ($17,200); a run-around track at the hump ($21,200) to permit unrestricted use of larger locomotives on the Toledo subdivision and to reduce delays to road and yard locomotives; and the rearrangement and improvement of the second floor of the terminal office building, at a cost of $6,400.

Projects completed at Walbridge, in addition to those already mentioned, include a $6,400 garage building for the use of a carpenter force, and the installation of air lines and train testing equipment. The latter project and a similar installation to be made at Presque Isle will cost a total of $31,500.

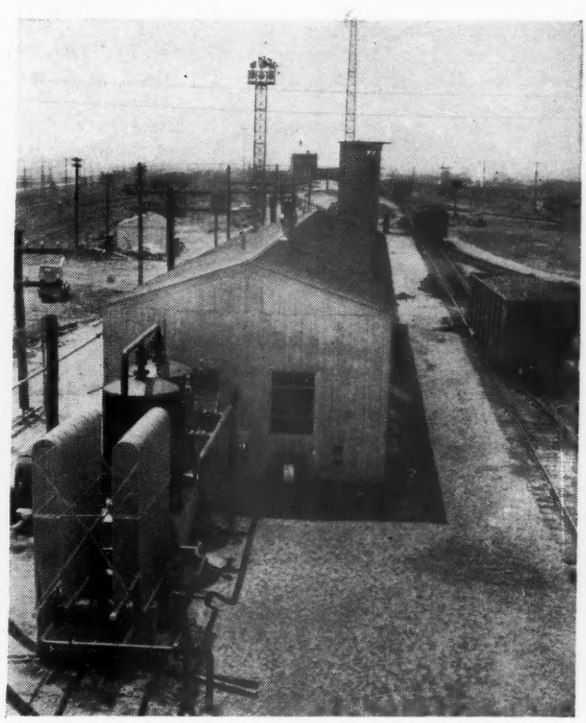
Presque Isle Improvements

Another phase of the improvement program is going forward at Presque Isle, affecting primarily the company's ore-handling facilities. At this location there are three ore unloaders which transfer ore from lake vessels into railroad cars. These cars are then moved in trains of 75 to 110 cars to Walbridge for further movement east. In 1947, ore unloadings of the company at Presque Isle exceeded 20,000 cars —more than double the number handled in 1946.

To expedite the delivery of the increased ore tonnage the road has constructed three additional storage tracks at Presque Isle, and two tracks to handle cabooses for trains in puller service. The cost of this work was $52,525. The new storage tracks, each with a capacity of 50 cars, are located directly in back of the ore unloaders. They are used for storing empty cars to be spotted for ore loading and for assembling ore trains destined for Walbridge. Including the new trackage, the area now has 74.7 mi. of tracks with a total capacity of 6,450 cars.

Also completed and in operation at Presque Isle is a loudspeaker system, installed at a cost of $16,600. With this facility the yardmaster is able to give instructions to workmen in the yards and throughout the dock area, thus eliminating delays in the transmission of instructions and orders. Nearing completion are additional water supply facilities costing $42,000.

Work has not yet started on two other projects authorized for Presque Isle—construction of a building for yardmasters and crews, at an estimated cost of $27,500, and the installation of additional interlocked switches and signals, estimated to cost $88,000. The latter project is being held up pending completion of plans and the availability of materials.



Above—The new control towers are of modern design. Below—This power station was constructed at Walbridge yard as part of the mechanization program. Note coal cars moving to the yard from the hump

GENERAL NEWS

Gass Sees Car Output Declining in Fall

Retirements running higher than in any recent year

Prospects that the production of new freight cars in near future months will equal the record June output of 10,381 units appear "dim," according to Arthur H. Gass, chairman of the Car Service Division of American Railroads, in his latest analysis of the "national transportation situation."

In making that prediction, Mr. Gass referred to a similar forecast made earlier this month by Colonel J. Monroe Johnson, director of the Office of Defense Transportation. As noted in *Railway Age* of July 10, page 148, Colonel Johnson, in a letter to officers of the steel companies participating in the freight car building program, declared in part that "we can see no hopeful prospect beyond June of the attainment of the 10,000 car goal" unless accumulative losses in steel supply to the car builders and component parts manufacturers are made up.

Mr. Gass observed that a report of the American Railway Car Institute for the first 15 days of July indicated a total production for that period of only 2,878 cars, compared with 5,186 during the comparable period of June, "thus confirming," he said 'the retrogression in production that Colonel Johnson predicted."

New High in Car Retirements

The 9,835 freight cars installed by Class I railroads and railroad owned and controlled refrigerator car lines in June was a gain of 456 over May and the largest number produced in any month since April, 1942, while the number of cars retired in June, 7,504, was below the May figure of 8,257 but otherwise was the highest for any month in any recent year, except last October. Retirements for the first half of 1948 were nearly a third greater than for the same 1947 period, Mr. Gass reported, adding that "this further confirms the fact that, because of necessary heavy deferred retirements over the past five years, the retirements this year will be greater than in any recent period."

The analysis also noted that (1) deducting retirements from installations there was a gain of 2,331 cars in service in June and 14,121 cars for the first six months of 1948; (2) hoppers show the greatest proportionate net increase, the gain being 15,050, while 3,098 more gondolas were retired than installed; (3) as of July 1, all railroad and private car lines had 122,171 freight cars on order; and (4) 96 per cent of the 648 new locomotives installed in the first half of 1948 were Diesel-electrics.

With respect to the box car supply, the C.S.D. chairman said that seasonal increases in demands for such cars have placed a "heavy strain" on the supply, adding that the problem of allocating the available supply consistent with national requirements and shortages has been complicated by the necessity of furnishing sufficient cars to take care of a winter wheat harvest which is now described as a "miracle crop." In this connection, he said that the latest estimates indicate a winter wheat harvest of 951,958,000 bushels, or 74,728,000 bushels more than forecast June 1, but 116,000,000 bushels less than last year's record crop; a corn crop of 3,328,862,000 bushels more than the 1947 output; and a spring wheat production of 290,000,000 bushels, as compared with 1947's 297,000,000 bushels.

Southwestern Wheat Harvested

"The peak of the movement from the Southwest is now passed and a large part of the credit due the railroads for their successful handling of this task should be given to the grain trade who cooperate to the fullest extent by furnishing disposition on and unloading of cars of wheat over the weekends and the July 4 holiday," Mr. Gass commented. "They also took prompt action to reduce accumulation of cars within the terminals by increasing their loading forces and lengthening work schedules.

"Harvesting of spring wheat will begin next week (July 25) in the southern part of the northwest grain belt and the pegs have been set to increase the supply of box cars on roads serving this area to the extent that they will be able to handle demands as successfully as they did last year." Special Car Order 49, "which was largely responsible for building up the supply of system box cars on the southwestern roads", was modified, effective July 10, to concentrate emphasis on meeting the peak requirements of the northwestern lines.

Mr. Gass also observed that railroads in the central-eastern region are "hard pressed" for box cars to take care of a wheat harvest which is expected to be "considerably larger" than last year and that carriers in the Pacific Northwest also are confronted with a "much larger" harvest than 1947, with prospects of a "record production" in Washington.

As for other types of closed cars, the C.S.D. chairman reported that (1) the supply of ventilated box cars has been adequate to take care of the watermelon crop in the southeast territory and that single deck stock cars, which had been moved into the southeast watermelon originating district to augment the supply of ventilated box cars, are now being returned to the owning roads; (2) there is an "adequate supply" of device and equipped automobile box cars to protect requirements; and (3) while there will be a sharp increase in the requirements for stock cars to handle livestock which will shortly be moving off the ranges, no difficulty is expected in protecting those requirements, with cars to be moved into the loading areas as they are needed.

Open-Tops in Demand

With respect to hopper cars, Mr. Gass said that the decrease in 1948 coal loadings, as compared with 1947, has been steadily reduced from 395,000 cars at the end of the six-day suspension in "captive mines" on July 13 to a deficit of 158,485 cars. "It seems probable that before the end of 1948, loadings will equal those of 1947 provided present demands and near-record loadings continue," he observed, adding that a "significant gain" also has been made on bituminous coal production during recent weeks.

Mr. Gass called attention to the prospect that consumption of bituminous coal—off nearly 17,000,0000 tons as compared with the first five months of 1947 — will increase later in the year because of anticipated industrial activity, particularly in the production of iron and steel. He also reported that the Lake coal and ore programs are moving ahead close to schedule, with about 52,000,000 tons of coal expected to be handled through Lake Erie ports and approximately 85,000,000 tons of ore to be handled from the head-of-the-Lakes before the close of navigation.

" The record of all hopper car loadings for the first 27 weeks reflects the heavy tonnage of commodities other than coal . . . loaded in comparison with last year," Mr. Gass continued. "To July 3, a total of 6,575,336 hoppers were loaded with all commodities, revenue and non revenue, as compared with 6,554,918 in the like period of 1947. Eliminating the coal loading for both years, it is apparent that there has been a favorable increase in the move-

ment of other commodities indicating that during the period of work suspension in the coal mines a large proportion of the cars normally in coal service are diverted to other usage.

As for other types of open-top cars, Mr. Gass reported that the gondola supply continues "seriously tight" in all sections of the country. He added, however, that an order requiring all Western roads to return, loaded or empty, gondolas owned by Eastern district and Allegheny region carriers to the latter has resulted in an eastward flow of about 600 gondolas per day through Chicago, Peoria, Ill., and St. Louis, Mo., or slightly in excess of the loaded movement to the west. According to Mr. Gass, "special efforts" are being made to expedite deliveries of new gondolas. "This type of equipment continues to be a real supply problem," he said, " and we must stretch the available supply to meet present and prospective heavy requirements by shortening the turn-around time to the best of our ability." He also noted that the demands for flat cars and covered hoppers in particular continue to be "heavy," with the requirements for the latter being "considerably in excess" of last year.

Mr. Gass also reported that the average turn-around time for all cars for June was 13.26 days, the lowest since October, 1947, and that revenue freight car loadings in the four weeks ended July 10 were 3,308,482, an increase of 3.9 per cent over the comparable 1947 period. The C.S.D. chairman's statement also includes excerpts from a statement made earlier this year before the House committee on interstate and foreign commerce by J. H. Aydelott, vice-president, operations and maintenance, A.A.R., in which he lauded the work of the 13 shippers advisory boards, particularly during World War II and periods of car shortage.

Wartime Rate-Making Defended by Faricy

Attorney general approved railroad procedures, he tells House group

To correct "misstatements" made earlier this month before a subcommittee of the House committee on expenditures in the executive departments with respect to the railroads' World War II activities, and in order that "such statements may not stand uncontradicted," William T. Faricy, president of the Association of American Railroads, has directed to Representative Bender, Republican of Ohio, chairman of the subcommittee, for inclusion into the record a six-page letter explaining how the railroads lawfully negotiated with the federal government on wartime freight rates and defending the railroad officers who participated in such transactions.

Mr. Faricy's letter followed by several days a reply by Attorney General Tom C. Clark to an inquiry from Representative Bender in which Mr. Clark, as reported in *Railway Age* of July 24, page 99, held that it would be "improper" to order a probe by the Federal Bureau of Investigation into the wartime activities of Army traffic officers and other government personnel who negotiated freight rates with the railroads. Mr. Clark also refused to turn over to the subcommittee a "confidential" report made by the Department of Justice's anti-trust division in 1945, which, the subcommittee had been informed, recommended, in addition to the F.B.I. investigation, a probe by the anti-trust division into the wartime freight rates paid by the government.

The statements to which Mr. Faricy has taken exception, and which also were responsible for Representative Bender's inquiry to Mr. Clark, were made July 7 and 8 by J. E. Kilday, chief of the transportation and public utilities section of the anti-trust division, and T. F. Proctor and F. L. Barton, former employees of that department, who are now working for the Post Office Department in connection with the railway mail pay case pending before the Interstate Commerce Commission. A condensation of the testimony of Messrs. Kilday, Barton and Proctor appeared in *Railway Age* of July 17, page 45.

Government Not Overcharged

According to Mr. Faricy, who said he would be "glad to appear" before the subcommittee should it desire to hear a representative of the A.A.R., the general purport of the statements of Messrs. Kilday, Proctor and Barton was that the government, during and since the war, has been charged unreasonably high rates by the railroads "partly because the railroads were organized through the Traffic Executive Chairmen's Committee for the purpose of holding up government freight rates and partly because former railroad men serving in the Army had put the interest of the railroads above that of the government in dealing with railroad rates."

"As to the general question of whether railroad rates for the government were reasonable or unreasonable," Mr. Faricy said, "I agree with Mr. Kilday's statement . . . that the only place where such an issue can be determined is the Interstate Commerce Commission. The question of reasonableness of rates on government freight traffic during the war has been brought before that body through the filing of 16 complaints by the Department of Justice.

"It is not appropriate, nor in fact possible, to try the intricate issues of these complaints in any tribunal other than that set up by Congress for the purpose. The issue will be so tried before the . . . commission. When that time comes, those acquainted with the facts in detail will show that in no instance was the government charged more than commercial shippers, while in most instances it was charged less. . . ."

In describing as "wholly false" the statement that the railroads organized the traffic chairmen's committee for the purpose of holding up government rates, Mr. Faricy said that such a committee was created at the request of J. B. Eastman, late director of the Office of Defense Transportation, in a letter of July 22, 1942, to the late J. J. Pelley, who was president of the A.A.R. at that time. In this connection, Mr. Faricy attached to his letter to the subcommittee Mr. Eastman's letter to Mr. Pelley and a letter of July 24, 1942, from Thurman Arnold, assistant attorney general at the time, to J. Garret Scott, then general counsel of the O.D.T., in which Mr. Arnold gave his approval to Mr. Eastman's proposal.

Mr. Eastman's action, Mr. Faricy said, was taken in accordance with the authority conferred by the late President Roosevelt's executive order of December 18, 1941, creating the O.D.T., and which provided that the O.D.T. "should represent the defense interest of the government in negotiating rates with domestic transportation carriers and in advising the appropriate governmental agencies with respect to the necessity for rate adjustments caused by the effect of the defense program."

The Chairmen's Committee

Mr. Faricy said that this committee consisted of D. T. Lawrence, who was succeeded by E. H. Burgess, now vice-president and general counsel of the Baltimore & Ohio, representing the Eastern lines; W. H. Dana, chairman of the Western Traffic Executive Committee, who succeeded the late J. A. Farmar as representative of the Western lines; J. C. Kerr, chairman of the Southern Freight Association, representing the Southern lines; and A. F. Cleveland, former vice-president-traffic, A.A.R., as chairman ex officio. "Mr. Cleveland had no vote in the committee," Mr. Faricy added. "The purpose of the committee was to expedite the handling of requests from departments or agencies of government for adjustments of freight rates, making it unnecessary for the government agencies to deal separately with all of the several railroads."

Denying that the government agencies were compelled to handle rate matters with the chairmen's committee and could not deal with the railroads direct, Mr. Faricy called the subcommittee's attention to "Civilian War Transport: a Record of the Control of Domestic Traffic Operations by the Office of Defense Transportation, 1941-1946," in which, he noted, it was stated that "the authority delegated to the committee was not exclusive and the government agencies, including the Office of Defense Transportation, were free at all times to negotiate with in-

dividual carriers or with associations of carriers concerning individual or joint rate adjustments." (A summary of the O.D.T. publication appeared in *Railway Age* of July 24, page 100.)

"As a matter of fact," Mr. Faricy went on, "this was done in many instances, and the government received numerous rate reductions from individual railroads and regional groups of railroads, as well as through the medium of the. . . committee. The usual procedure of the committee was to receive requests from government agencies for reductions in rates or for making rates on commodities which had not theretofore moved commercially, or to and from points where such commodities had not before moved. If the committee did not agree to make the reduction requested, and the government agency was not satisfied with whatever counter proposal the committee might make, full opportunity was offered for the matter to be submitted to and acted on by the chief traffic officers of the railroads concerned. Arrangements were made by the committee for representatives of the government agency to meet with these traffic officers."

Section 22 Rates

According to Mr. Faricy, if action taken by the chief traffic officers of the railroads was not satisfactory to the government agency concerned, it always had the right to take the matter up with the I.C.C., which, he said, was done in several instances. "In those numerous instances in which the railroads agreed to make rates lower for the government than those afforded commercial shippers, the reduced rates were announced in special quotations under section 22 of the Interstate Commerce Act," the A.A.R. president added. "The . . . committee alone issued 762 such quotations, covering many thousands of rates and movements throughout the country, in addition to the very large number of reduced rate quotations made by regional groups of roads and by individual railroads."

Mr. Faricy also pointed out that the chairmen's committee went out of existence on February 1, 1946, with the passing of the emergency which resulted in its creation. "Since that time," he observed, "there has been no central agency to make reduced rate quotations for the government and government requests for reduced rates are directed to and handled by either the individual railroads or the several regional rate organizations."

Replying to the charges that railroad men who were in the traffic organization of the armed forces and who have since returned to railroad employment failed or refused to secure from the railroads rates reduced to the level which the Justice Department "now thinks would have been reasonable," Mr. Faricy observed that the substance of such allegations is that (1) such men had worked for railroads in civilian life; (2) went into military service; and (3) returned to their employment after the war was over.

"Baseless" Accusations

"With no more basis than this," he continued, "witnesses indulged in reckless and baseless insinuations of criminality. The lack of any real basis for such slurs was disclosed by the witness Kilday when he was asked whether he had any evidence that cast 'serious doubt' on the integrity of these 'persons representing the government in transportation rates.' He admitted that he had no such evidence. 'The only thing I have ever seen,' he said, 'from which you could even raise an inference that there was anything criminal going on over there was the fact that some of these people came from railroads, served over there during the war and then went back to the railroads.'"

The same thing, Mr. Faricy said, was true of "many thousands of men" not only from the railroads but from every line of industry. "When the emergency struck, and a many-fold expansion of the armed forces became necessary, the armed forces sought qualified men to do the work which had to be done. They took many thousands of railroad men, among others. These men were brought into the military service and ordered to duty where they could be most useful to the country. They served in every capacity, and in all parts of the world. The railroad men who went into the armed forces need fear no comparison with any other body of men on the score of patriotism and integrity.

"The railroads did not ask to have these men put into uniform. Their services were asked for. The railroads did not assign them to duty. They were assigned by proper authority in the armed forces. When these men completed their military service, all those who desired to do so returned to their railroad employment. The railroads were glad to get them back but even there the matter was not one of railroad choice. The Congress itself, in the Selective Service Act, provided that men who had been in the armed services must be reemployed, with all seniority and promotion rights unimpaired. The railroads are proud of what their men did for the country during the war and were glad to have them do it. They are working right now with the armed forces setting up reserve organizations for possible future emergencies. It is disconcerting to realize, however, that the service to which these men may be called might subject them to such insinuations and innuendoes as have been cast at some of the men who served in the last war."

Assumptions Unproven

Mr. Faricy also declared that underlying the charges of a railroad organization to hold up government rates and the allegation that former railroad men in military service failed to represent properly the government's interest is the assumption on the part of witnesses who appeared before the subcommittee that the rates charged the government by the railroads were excessive.

"For two years or more," he said, "the Department of Justice has issued press statements from time to that effect in connection with the 16 complaints which the department has filed with the . . . commission, seeking reparations from the railroad in an amount variously estimated at from $2,000,000,000 to $3,000,000,000. It is difficult to escape the conclusion that the hearings before your subcommittee are being used by some of the witnesses in an attempt to prejudice the railroads in connection with this reparation litigation. The issues of reasonableness of rates raised in that litigation will be heard and passed on by the . . . commission, the tribunal created for that purpose. They are technical questions which only that tribunal can decide, and then only after full hearing."

Adding that there are a "few general observations" which he believed should be made to the subcommittee, Mr. Faricy noted that the railroads earned a net railway operating income of 4.97 per cent on their net investment during the five war years, 1941 to 1945, when, he added, the carriers transported the largest volume of traffic they have ever handled in any comparable period. Such a return, he said, certainly was not "unreasonable."

According to Mr. Faricy, the suits of the Justice Department against the railroads are not suits for "overpayment" in the ordinary sense of the word because there is no claim in them that the railroads charged the government more than the established rates legally in effect. The department, he said, not only is seeking to retain the benefits of all the many thousands of negotiated rates which it finds to the government's advantage, but also is asking the commission to go back more than six years and to reduce rates retroactively where the department thinks further advantages can be gained.

Could Cause Chaos

"As to the consequences of such action," Mr. Faricy pointed out, 'the $2,000,000,000 which the department says it seeks to recover is nearly three times the net working capital of all the railroads in the country today. Collection of such an amount would probably bankrupt the bulk of the industry, and certainly it would bring to an abrupt halt the $1,000,000,000-a-year program of the railroads for the restoration of their plant and equipment and for improvements and better service in the future. That is why major shippers' organization of the country have intervened before the commission in opposition to the program of the Department of Justice."

Mr. Faricy said it was not his intention to discuss in detail issues which will be tried and determined elsewhere. At the same time, however, he informed

Representative Bender that 'in view of the seeming efforts of witnesses befor your subcommittee to prejudice that determination, I have felt it necessary to offer these observations on the broad and basic considerations involved."

Equipment Depreciation Rates For Reorganized New Haven

Equipment depreciation rates for the reorganized New York, New Haven & Hartford are among those prescribed by the Interstate Commerce Commission in a recent series of sub-orders in the general proceeding, Depreciation Rates for Equipment of Steam Railroad Companies. The rates are: Steam locomotives, 2.74 per cent; other locomotives, 3.03 per cent; freight-train cars, 2.68 per cent; passenger-train cars, 2.93 per cent; floating equipment, 2.14 per cent; work equipment, 3.75 per cent; miscellaneous equipment, 15.08 per cent.

N.R.A.A. Names New Assistant Secretary—Changes Address

At a recent meeting of the board of directors of the National Railway Appliances Association, Lewis Thomas, general sales manager of the Q. & C. Co. and secretary of the Track Supply Association, was appointed assistant secretary of the N.R.A.A., and the headquarters of the association were moved to Mr. Thomas' office, 59 E. Van Buren street, Chicago.

Hammer Succeeds Chapdelaine as Chief of Rail Tariffs Section

The Interstate Commerce Commission has announced the appointment of W. B. Hammer, chairman of its Board of Suspension, as assistant director and chief of the section of rail tariffs, Bureau of Traffic, effective August 1. Mr. Hammer succeeds E. W. Chapdelaine, who voluntarily retired on June 30 after more than 34 years of service. E. H. Cox, assistant to the director of the Bureau of Traffic, has been named as successor to Mr. Hammer as chairman of the Board of Suspension.

Mr. Hammer has been in the commission's service for approximately 28 years. He entered as a tariff examiner on September 7, 1920; was promoted to member of the Board of Suspension on June 1, 1930; and became chairman of the board on January 1, 1938. Prior to entering the commission's service, he was employed by the Pennsylvania for five years and by the Tionesta Valley for three years. He is a veteran of World War I.

Mr. Cox has been in the employ of the commission for more than 21 years, except for about four years when he was in the military service during World War II. He was appointed a tariff examiner on February 1, 1927; became a rate clerk on July 22, 1929; a report writer in the suspension board on August 4, 1940; chief clerk to the director on July 1, 1935; assistant chief of the section of rail tariffs on July 16, 1936; and assistant to the director on September 16, 1942. Before coming to the commission he was employed by the New York Central for approximately 12 years.

The commission also has announced the appointment of A. E. Birum as chief of the section of certificates, Bureau of Motor Carriers, to succeed H. M. Roberts, who has been transferred to Albuquerque, N. M., as district supervisor, effective July 25. Mr. Birum has acted as chief of this section during the continuing illness of Mr. Roberts. Mr. Birum became an employee of the commission in 1936.

A.S.T.M. Officers and Directors Nominated

Richard L. Templin, assistant director of research and chief engineer of tests, Aluminum Company of America, has been nominated for president of the American Society for Testing Metals for 1948-1949. L. J. Markwardt, assistant director, U.S. Forest Products Laboratory, has been nominated for vice-president. Nominated for the society's board of directors were: Leslie C. Beard, Jr., chemist and assistant director of laboratories, Socony-Vacuum Oil Company; Simon Collier, director of quality, Johns-Manville Corporation; Theodore P. Dresser, Jr., chief engineer, Abbot A. Hanks, Inc.; Howard K. Nason, associate director, central research department, Monsanto Chemical Company; and Edgar W. Fasig, general superintendent, Lowe Brothers Company.

R. & L.H.S. Bulletin No. 73

A sketch and catalogue of Otto Mears' passes is one of a number of articles appearing in Bulletin No. 73 of the Railway & Locomotive Historical Society. In the early years passes were distributed freely, usually being made of paper or cardboard, but Mears, who was the builder of the Silverton, the Rio Grande Southern, and the Silverton Northern in the 1880's and '90's, issued unusual ones. In the "San Juan country" five kinds appeared: the buckskin, solid silver, silver watch fob (also called medallion) and silver and gold filigrees. These are described and illustrated in this article, and the recipients, numbers and present owners of each type listed. The issue also contains a rather extended article on the history of the Camden & Atlantic and associated railroads, 1852-1897; a historical sketch of the Baltimore & Ohio Chicago Terminal and its predecessor companies; and articles on the "Tom Thumb," the history of the locomotive feed water heater, and the Norfolk & Virginia Beach railroad. Copies are available from the Society, Baker Library, Harvard Business School, Boston, Mass., at a price of $1 to members and $2 to non-members.

Lists 1946 Commodity Statistics According to Geographical Areas

The Interstate Commerce Commission's Bureau of Transport Economics and Statistics has made public its statement No. Q-550 for the year 1947, showing for Class I roads the tons of revenue freight originated and terminated in carloads by classes of commodities and by geographical areas. The commodity-group figures total 1,514,984,779 tons originated and 1,387,399,363 tons terminated.

The "geographical areas" breakdown is by states, except that the six New England states are grouped together. The big originator and terminator is Pennsylvania, where 249,075,988 tons originated and 174,082,169 tons terminated last year. Pennsylvania also originated and terminated forwarder traffic amounting to 252,580 tons and 88,430 tons, respectively, but the leader in that category was Illinois with 1,341,866 tons originated and 843,647 tons terminated.

Illinois also led as the largest originator of agricultural products with 14,608,408 tons and as the biggest originator of animals and products with 2,488,216 tons. It also was the leading terminator of agricultural products with 14,324,083 tons, while New York, with 2,424,143 tons, was the foremost terminator of animals and products.

Pennsylvania was the leading originator and terminator of mine products with 189,259,287 tons and 118,420,859 tons, respectively, and also led the manufacturers and miscellaneous group with 57,518,796 tons originated and 44,780,193 tons terminnated. Oregon, with 11,883,388 tons originated, and Washington, with 8,835,224 tons terminated, led the forest products category.

Washington-Virginia-South All-Commodity Rates Approved

Division 3 of the Interstate Commerce Commission has found to be just and reasonable the establishment of all-commodity carload rates from Washington, D. C., Newport News, Va., Norfolk and Richmond, to 11 destinations in the South, including intermediate points. The commission's action serves to vacate an order suspending operation of the proposed rates and discontinues the proceeding, docketed as I. & S. No. 5504. The Southern and Seaboard Air Line were the principal proponents of the new rates.

The rates uniformly reflect 40 per cent and 75 per cent of first class rates prior to the general increases of January 1, 1947, subject to carload minima of 30,000 lb. and 12,000 lb., respectively. The rates subject to the mini-

Ernest E. Norris (left), president of the Southern, received recently from Ned H. Dearborn (right), president of the National Safety Council, that organization's Award of Honor for Distinguished Service to Safety, in recognition of its 1947 employe safety record. Looking on are Harry A. DeButts (left rear), operating vice-president of the Southern, and Charles M. Kimball (right rear), assistant to vice-president (safety); they hold the council's "green cross for safety" pennant, which the Southern is now eligible to fly

mum of 12,000 lb. are for application to articles rated second class or higher in the southern classification or exceptions thereto, and those subject to minimum of 30,000 lb. to articles rated sixth class or higher.

The rates are for application on all commodities, except certain dangerous, perishable, bulky and contaminating articles, specified in the tariffs, but not where more than 50 per cent of the weight consists of any one commodity on which the straight carload rate with minimum weight results in higher charges than those based on the all-commodity rates and minima.

The latter stipulation, according to Commissioner Patterson, who dissented, results in "unjust discrimination." In this respect, he referred to his concurring-in-part expression in *All Freight from Eastern Ports to the South*, 251 I.C.C. 361, wherein he held that "if 50 per cent of one carload consisted of a commodity rated first class and the other 50 per cent consisted of another commodity rated first class the shipper would pay the all-commodity rate, but another shipper, shipping a straight carload of one of these commodities, would have to pay the first class rate."

The rates, which the commission found to be "reasonably compensatory," were opposed by the United States Maritime Commission, the Southern Motor Carriers' Rate Conference, numerous water carriers and the Central of Georgia, owner of the Ocean Steamship Company of Savannah, Ga. According to the report, the C. of Ga.'s water carrier subsidiary, which operated between Savannah and Boston, Mass., and New York prior to World War II, has now purchased two ships and is taking other steps "under severe difficulties" toward resumption of operations, but regards as "disastrous" the anticipated effect of the proposed rates upon its future plans.

The commission, meanwhile, again pointed out that the nature of all-commodity rates is such that they can be used only by large shippers of miscellaneous freight or by freight forwarders or other consolidators of small lots. "The shippers appearing in support of the suspended schedules . . . are interested primarily in the anticipated improved service under the suspended schedules," it added. "There are shippers and forwarders at Washington and Richmond who could avail themselves of the proposed rates but apparently the principal use of the latter would be by shippers and forwarders from eastern cities who could ship at all-commodity rates now maintained to Washington in combination with the proposed rates from Washington to the South, and it is this contingency that is looked upon with apprehension by the water carrier protestants."

Representation of Employees

The Brotherhood of Maintenance of Way Employees has retained its right to represent Pacific Electric maintenance-of-way employees (including those below the rank of supervisor in the track department and general foreman in the bridge and building department but not including clerical or other employees in the signal, telegraph and telephone maintenance departments), as the result of a recent election which has been certified by the National Mediation Board. The brotherhood defeated the Transport Workers Union of America, Congress of Industrial Organizations, 316 to 139.

As the result of other N.M.B. action, the Brotherhood of Railway & Steamship Clerks will continue to represent clerical, office, station and storehouse employees of the Union Depot Company, Columbus, Ohio, and "red caps" employed by the Spokane, Wash., Union Station.

The N.M.B. also has certified the Railroad Yardmasters of America as the representative of yardmasters of the Pere Marquette District of the Chesapeake & Ohio and the Detroit Terminal. These employees were not represented by any organization.

Finds Permanent Rights to Haul Radioactive Materials Not Needed

If a particular need for transportation of radioactive materials should suddenly materialize for which there is no adequate existing carrier service available, it may be met—so far as operating authority is concerned—by an application for temporary authority, it has been ruled by Division 5 of the Interstate Commerce Commission.

The commission's findings were contained in its report denying an application filed by the W. J. Dillner Transfer Company, of Pittsburgh, Pa., for permanent authority to haul radioactive chemicals, materials, drugs and medicines requiring special handling and equipment, special containers therefor, and special instruments and equipment used in handling such commodities, in states in which it is already authorized to operate as a motor common carrier of household goods, with origin points to be limited to points in New York, Tennessee and Pennsylvania.

According to the report, the need for the transportation of the commodities is sporadic and their movement "exceedingly hazardous." At the same time, it observed that there is very little evidence of record of any definite need for the applicant's proposed service "and such as there is, is based on what we now believe to be an erroneous assumption as to the character of the transportation equipment which would be required."

The commission said that although considerable knowledge is being acquired about radioactive materials and methods of handling them, the knowledge of even "experts" in that particular field is limited. It added that, as progress is made and experience and knowledge is gained, its regulations governing the transportation of radioactive materials will be modified accordingly. "It is obvious," the commission commented, "that, with the limited commercial use of atomic energy at the present time when viewed in the light of its potentialities, much is yet to be learned in connection with the transportation of these radioactive materials."

The commission noted that while special packing and handling of radioactive materials is required, there is no requirement that specially constructed

vehicles, such as suggested by the applicant, must be used in performing the transportation. It also noted that the "experts" who testified in the instant proceeding stressed the importance of safe containers.

"While, for the utmost protection of the public, they endorsed the use of specially constructed lead-lined vehicles, for the protection of persons handling the shipments, they testified that the use of safe containers was of primary importance," the report went on. "If the packing requirements prescribed by the regulations are observed, it is not apparent, as far as we know at the present time, that any such equipment or specialized carrier service as proposed by the applicant will be required."

Women Railway Employees

Class I railways had 64,630 women employees as of the middle of April, a decrease of 2,818 from the mid-January total of 67,448, but the proportion of women employees to total employees increased from 5.12 per cent to 5.14 per cent, according to the latest report on the subject by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission.

The total of 64,630 women employees as of the middle of April compares with an April, 1947, total of 71,294. The totals of all employees at the same times were 1,257,568 and 1,345,801, respectively.

As compared with mid-January, there were decreases in the mid-April figures in all but two of the employment groups. The largest drop was in the professional, clerical and general category, for which the mid-April total was 52,015, as compared with a mid-January total of 54,099.

There were 6,133 women employed in maintenance of equipment and stores, as compared with 6,429 last mid-January; 6,280, as compared with 6,725 in transportation work, other than train, engine and yard; and 128, as compared with 135, in maintenance of way and structures.

Other mid-April tabulations show 16 women in the executives, officials and staff assistants group; 28 among the switchtenders, as compared with 15 as of mid-January, and 30 in train and engine service.

May Truck Traffic

Motor carriers reporting to the American Trucking Associations transported in May 2,742,206 tons of freight, a decrease of 2.1 per cent under the April total of 2,800,724 tons, but an increase of 11.3 per cent over the 2,464,159 tons hauled in May, 1947. The A.T.A. index number, based on the 1938-40 average monthly tonnage of the reporting carriers, was 220.

The May figures, according to the A.T.A., are based on comparable reports from 307 carriers in 42 states. Carriers in the Eastern district reported a decrease of 3.4 per cent below April and an increase of 8 per cent above May, 1947; carriers in the Southern region reported increases of 1.6 per cent and 32 per cent, respectively; and carriers in the Western district reported a decrease of 1 per cent below April and increase of 11.6 per cent above May, 1917.

June Employment

Railway employment increased 2.30 per cent—from 1,320,733 to 1,351,127—during the one-month period from mid-May to mid-June, but the mid-June total was 1.76 per cent below that of June, 1947, according to the preliminary summary prepared by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The index number, based on the 1935-39 average, was 130.6 for June, as compared with 129.9 for May and 132.9 for June, 1947.

June employment was above that of June, 1947, in only two categories, the increases being 2.17 per cent in executives, officials and staff assistants and 2.20 per cent in the maintenance of way and structures group. The decreases ranged from 1.82 per cent in maintenance of equipment and stores to 6.16 per cent in transportation, other than train, engine and yard.

As compared with May, employment in June increased in five groups, ranging from 0.39 per cent in transportation, other than train, engine and yard, to 7.70 per cent in the maintenance of way and structures category. The only decreases were 0.02 per cent in executives, officials and staff assistants and 0.57 per cent in transportation (yardmasters, switchtenders and hostlers).

Wartime Transportation Problems Subject of Advisory Group Study

Transportation problems which would arise in the event of an enemy attack on the United States are being studied by an advisory panel headed by R. J. Hopely, director of the Office of Civil Defense Planning, and Colonel E. C. R. Lasher, Transportation Corps, United States Army, transportation advisor of that office. The group, which is meeting in Washington, D. C., plans to submit to Secretary of Defense Forrestal recommendations with respect to the role of the transportation industry in an overall national civil defense program.

Methods of organizing all types of transportation facilities for possible mass evacuations and problems relating to loading points, assembly areas, traffic control and public safety were among the topics discussed at a recent two-day meeting of the group.

Members of the panel include J. M. Hood, president of the American Short Line Railroad Association; J. H. Aydelott, vice-president, operations and maintenance, Association of American Railroads; H. C. King, deputy director, Office of Defense Transportation; M. F. Redfern, vice-president, traffic, Air Transport Association of America; J. V. Lawrence, managing director, American Trucking Associations; Admiral Lyndon Spencer, vice-president, Lake Carriers Association; S. D. Schell, vice-president, National Federation of American Shipping; Chester Thompson, president, American Waterways Operators; Commissioner Thomas MacDonald, Public Roads Administration, Federal Works Administration; and Colonel R. I. Glasgow, Transportation Corps, U. S. A. Frank Perrin, executive assistant of the O.D.T., is among the alternate members.

Kansas Intrastate Rates

Railroads operating within Kansas have asked the Interstate Commerce Commission to investigate the refusal of the corporation commission of that state to permit intrastate freight rate increases in line with the increases in interstate rates that have been authorized in Ex Parte 162 and Ex Parte 166. The petitioners told the commission that they are losing and will continue to lose approximately $3,000,000 in annual revenues because of the lower rates on Kansas intrastate traffic as compared with those on interstate movements.

Railroad Sports Congress

An invitation to all railroad athletic associations to participate in the Third International Railroad Sports Congress to be held in Paris the week of September 12 has been extended by Karl Zeiser, secretary general, International Union of Railroad Sportsmen. The affair has the endorsement of Lt. Col. R. E. Shineman, formerly of the New York Central, and now chief, transportation division, United States Allied Commission for Austria.

Interested groups are requested to contact Mr. Zeiser at Dpt. 11/7, general management, Austrian Federal Railroads, 48-52 Linke Wienzeile, Vienna VI, Austria, for further information.

Would Cut Barge Operations Until Congress Adds to Funds

Alarmed by the "dwindling financial resources of the federal government's Inland Waterways Corporation, that organization's advisory board has recommended temporary curtailment and/or suspension of service on several routes of the Federal Barge Lines in order to conserve the corporation's resources "until more efficient equipment can be constructed."

Specifically, the board recommended that (1) service on the Missouri river be reduced to monthly sailings to Kansas City, Mo., and be temporarily reduced above Kansas City; (2) carload and l.c.l freight to, from and via

upper Mississippi River ports above St. Louis be suspended and that service there be confined to barge load traffic; (3) service to, from and via Baton Rouge, La., be suspended; and (4) service to, from and via Greenville, Miss., and Helena, Ark., be suspended except for barge load traffic and cotton.

The board recommended that the I.W.C. draw up for presentation to Congress a rehabilitation program based on equipment for so-called integrated tow operation. The board said that the program should include an integrated towboat especially adapted for Missouri river service, another adapted for Illinois and Chicago river service, another for upper Mississippi river service, and one to augment lower Mississippi river service and about 50 barges aggregating 75,000 tons of additional barge capacity.

Texas & Pacific Goes To Three-Division Setup

L. C. Porter, who will become operating vice-president of the Texas & Pacific on August 1 (as reported in *Railway Age* of July 17, page 59), states that the railroad will go to a three-division plan of operation shortly, and will establish division headquarters at Big Spring, Tex., and Alexandria, La., in addition to existing offices at Fort Worth, Tex. The latter point, under the present arrangement, is headquarters for two divisions which extend east and west to New Orleans, La., and El Paso, Tex., respectively.

The three new divisions will extend between El Paso and Fort Worth, with headquarters at Big Spring; Fort Worth and Shreveport, La., with headquarters at Fort Worth; and between Shreveport and New Orleans, with headquarters at Alexandria.

Status of Allegheny & South Side

Examiner E. L. Boisseree has recommended in a proposed report that the Interstate Commerce Commission find that although the operations of the Allegheny & South Side are transportation subject to part I of the Interstate Commerce Act, such operations, performed as agent of the Pennsylvania and Pittsburgh & Lake Erie, do not make the South Side a common carrier by railroad subject to the act.

Investigation of the status of the South Side was launched by the commission on its own motion last January. Wholly owned by the Oliver Iron & Steel Co., the road is a terminal switching line, the operations of which extend along the south bank of the Monongahela river in Pittsburgh, Pa. Its status was decided previously in 1921, when the commission's Division 3 found that it was not a common carrier subject to the act, and the new proceeding was undertaken as a result of an inquiry from the Bureau of Internal Revenue as to whether the 1921 decision represented the present position of the commission.

The examiner held that the South Side "neither owns nor controls the rails over which it performs the switching service. It performs the service solely by virtue of the agreements with the trunk lines . . . All of the incidents of operation are performed by the trunk lines who are obligated under their tariffs to perform the switching operations required by the shippers located on their tracks. This obligation is expected through the medium of respondent who performs the service as their agent, but the trunk lines, on cancellation of the agreements, could and would be required to perform the service in their own right." To conclude that the South Side is a common carrier would, he said, require the trunk lines to surrender portions of their own tracks and their right to perform the service themselves.

The Brotherhood of Railroad Trainmen had filed a brief contending that the South Side is a common carrier, while the trunk line railroads concerned intervened in support of the switching line's position that it is only their agent.

Alloy Steels' Fiftieth Anniversary To Be Celebrated This Fall

William T. Faricy, president of the Association of American Railroads, together with seven presidents of other national associations in the alloy steel consuming and producing fields, and the presidents of the three largest steel producing companies, have accepted appointments from the American Society for Metals to serve with the society's president, Francis B. Foley, and the society's vice-president, Harold K. Work, on the honorary committee covering the "Salute to Alloy Steel," central theme of the National Metal Congress and Exposition, which holds its 30th annual convention in Philadelphia, Pa., October 25 to 29. The "diamond jubilee" in the development of alloy steels will be celebrated on this occasion.

Carriers Oppose Donaldson's New Plan for Handling Mail

A plan advanced by Postmaster General Donaldson calling for the modification of present arrangements for the handling of mail on the railroads is strongly opposed by the carriers in a statement filed with the Interstate Commerce Commission. Details of Mr. Donaldson's proposal— a so-called "comprehensive plan" for the transportation of mail—were reported in *Railway Age* of July 17, page 50. Among the more important features of the plan, which the Post Office Department has proposed to become effective on August 1, are those which would modify arrangements for storage space service, i.e., the transportation and handling of made-up mail in bulk.

The plan was filed in connection with the railroads' request for authority to effect a permanent increase of 65 per cent—as compared with a previous request for 45 per cent—in the rates for handling mail. The 65 per cent adjustment would be added to the rates in effect on February 18, 1947, and would replace the interim increase of 25 per cent effective February 1, which was retroactive to February 1, 1947.

According to the railroads, the postmaster general's plan was filed with the commission as an announcement, and not as a proposal, and contains no request for commission consideration or approval. The plan, they said, would permit demands for great increases in services performed by the carriers in connection with mail transportation, with resultingly "great increases" in carrier costs. The railroads asserted, too, that the plan contains no provisions for increased compensation to offset such increased costs.

The carriers told the commission that if the plan became effective August 1, the postmaster general would be empowered as of that date to assess fines against the railroads for each instance of failure to perform the required service, even though it will be physically impossible to perform the required services on such short notice. The institution and enforcement of the proposed changes in the operations of the railway mail service, they said, would be arbitrary and unreasonable "even assuming that the postmaster general may lawfully require of the carriers all of the kinds and extent of service" which the operating provisions of the plan would permit him to demand.

The railroads also held that the "revenue provisions" of the plan, which specify the units of service for which the carriers shall be paid and in the manner in which the prescribed rates shall be applied to determine the compensation to the carriers, are in conflict with the rules prescribed by the commission in 1919 and 1928, and would "very substantially reduce," without commission approval and without reduction in service rendered, the compensation receivable by the railways for mail transportation.

Authority Questioned

The railroads told the commission that the purpose of their statement was to bring to its attention the "contempt" of its orders and the "usurpation" of its authority which would result from the postmaster general's adherence to his announced intention to require service of the carriers and to pay for that service on the basis indicated in the so-called "comprehensive plan." "This usurpation would be in derogation of the constitutional and statutory rights of your petitioners, to their substantial financial injury," they said, adding that the postmaster general has no authority to prescribe the rules or methods by

which mail pay rates shall be applied.

The commission, the railroads said, should suspend the application and effective date of the plan until such time as it shall have considered and approved provisions which would affect the compensation receivable by any carrier for mail transportation and related services. In addition to requesting a hearing, the carriers also suggested that, because of the "intricate technicalities" inherent in the plan, they be given not less than 180 days in which to analyze, study and prepare a comprehensive answer to Mr. Donaldson's proposal.

Replying to the railroads' statement, A. C. Wiprud, associate solicitor of the Post Office Department, told the commission that "the single, overriding fact which emerges from the strange 'answer' of . . . the railroads is that they seek through the instrumentality of the commission to strip the postmaster general of his administrative powers over the transportation of the mail by railroads, including the power to prescribe the manner and conditions of such service as the needs of the postal service may require, and to reduce him, contrary to the letter and spirit of the Railway Mail Pay Act of 1916, to a mere paymaster."

In recommending that the commission "strike" the railroads' views, Mr. Wiprud stated that the fixing of just and reasonable rates and compensation to the carriers for services performed under the plan is the duty of the commission, adding that any question of increased costs to the carriers under the plan must "necessarily" be determined by the commission in the discharge of that duty.

According to Mr. Wiprud, the railroads' reply to the plan is "frivolous" and "wholly immaterial" to any issue before the commission. "The carriers' attempt to confuse the space method with the service requirements embodied in the . . . plan is clearly designed to impede and delay the commission in determining fair and reasonable rates and compensation for the services so required," he said. "The wishful thinking implicit in the strange reasoning of counsel for the railroads that the administration of the postal service be completely removed from the postmaster general (which we are sure the railroads as a whole do not subscribe to) will find no sympathetic response here."

Interstate Freight Stock Case Reopened for Further Hearing

To investigate and determine whether the sales of the capital stock of Interstate Motor Freight System to J. P. Altwater and Acme Truck Rentals, Inc., constitute a divestment of the stock ownership by United States Freight Company and Hickock Oil Corporation in Interstate, and whether the power of United States Freight and Hickock to control or manage Interstate has been terminated, the Interstate Commerce Commission has reopened the proceedings wherein, as noted in *Railway Age* of October 14, 1944, page 599, it required United States Freight and Hickock to divest themselves completely of all interest in the stock of Interstate. Hearing has been scheduled for September 9 at Washington, D. C.

Derailment Caused by Defective Tender-Truck Side-Bearing Plate

A defective tender-truck side-bearing plate caused the April 25 derailment of an Illinois Central passenger train on the line of the St. Louis-San Francisco near Adamsville, Ala., according to the report on an Interstate Commerce Commission investigation conducted under the supervision of Commissioner Patterson. The accident resulted in the death of 1 passenger and 2 employees, and the injury of 106 passengers, 4 Pullman employees, 1 coach attendant, 1 train porter and 2 train-service employees.

It occurred on that part of the Frisco's Southern division which extends between Birmingham, Ala., and Amory, Miss., 123.6 miles of single-track line over which trains are operated by signal indications. I.C. trains are regularly operated over the 41-mile section between Birmingham and Jasper, Ala. The point of derailment was on that section about 15 miles north of Birmingham and 2.3 miles north of the station at Adamsville. In this vicinity, the track is laid on a hillside rock cut, and is about 125 ft. above the level of the bed of a ravine on the east. The train's approach was over a tangent 1,286 ft. in length, a spiral curve to the left 241 ft., a 3 deg. 9.5 min. curve to the left 152 ft., a spiral curve to the left 179 ft., and an 8 deg. 24 min. curve to the left 472 ft. The derailment occurred at the point where the last-mentioned spiral joins the 8 deg. 24 min. curve.

Nine Cars Derailed

The train was No. 1354, the northbound "Sunchaser," consisting of an Illinois Central steam locomotive and 13 all-steel cars in the following order: 1 baggage-dormitory car, 2 coaches, 3 sleeping cars, 1 dining car, and 6 sleeping cars. It was traveling at an estimated speed of 20 m.p.h., its limit on the curve involved being 35 m.p.h., when the locomotive, the tender, the first 9 cars and the front truck of the tenth car were derailed.

The locomotive overturned to the right and stopped on its right side down the embankment, headed westward and at right angles to the track, with the front end 203 ft. north of the point where it was derailed and 65 ft. east of the centerline of the track. The cab was "demolished," and the steam pipes within the cab were broken. The right side of the engine and the left rear corner of the firebox, the frame, and the trailer-truck were "considerably damaged." The tender, remaining coupled to the engine, stopped upside down at the rear of the engine and at an angle of 45 deg. to it. Both tender trucks were detached and "badly damaged," the rear one being broken into "several pieces."

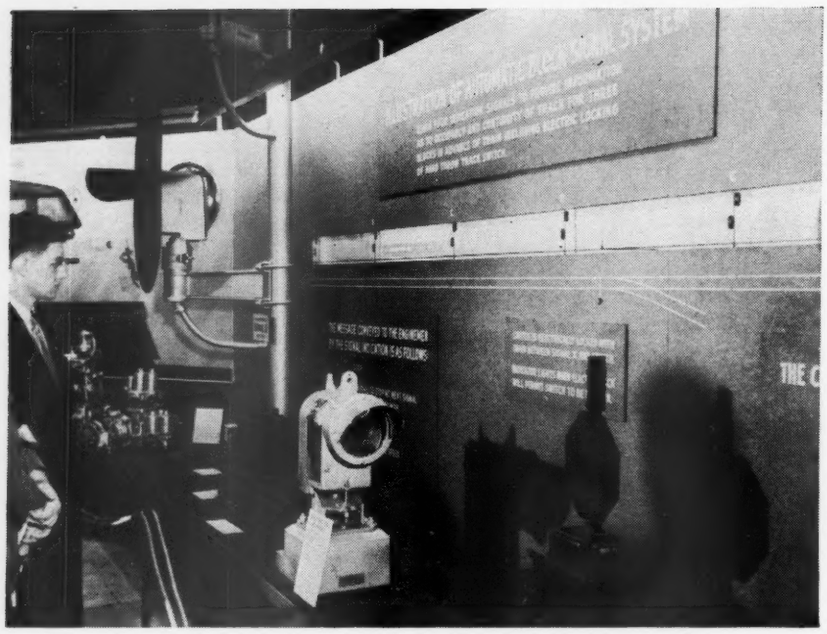
Separations occurred at each end of the first five cars and the eighth car; only the sixth car was equipped with tightlock couplers. The first car stopped on its right side on top of the tender; it was "demolished." The second car stopped down the embankment, practically upright and with its front end about 20 ft. south of the engine. This car was described as having been "badly damaged." The third car stopped down the embankment, also practically upright, but it was "demolished"; its left side was crushed inward about 2.5 ft. at a point about 20 ft. back of the front end. The other derailed cars stopped in various positions on the roadbed or down the embankment, the fourth to the eighth, inclusive, being "considerably damaged," and the ninth and tenth "slightly damaged."

Description of the Tender

The tender was equipped with two four-wheel trucks of the swing-motion type. Side-bearing plates were arranged on each body bolster, and those on the rear body bolster were 12½ in. long by 4½ in. wide and 1 in. thick. A shim ¼ in. thick was inserted under these plates, and the plates were secured by two ¾-in. bolts, the heads of which were countersunk in the plates and spaced 7½ in. apart. The bolts were secured from above by hexagonal nuts. The truck center pins were non-locking, and the trucks were not equipped with safety chains.

Commission investigators found no indication of defective track, dragging equipment, or of any obstruction having been on the track. They also found that all breaks in the tender trucks had occurred as a result of the derailment. The rear body-bolster side-bearing plate was missing, but examination disclosed that the rear bolt of this plate had been in place and had been sheared. The front bolt hole in the bolster was elongated and varied between ¾ in. and 1⅛ in. in diameter. The bolts were inserted with the threaded portion upward, and there was no provision to retain the bolt if the nut worked off, the report also noted.

"Apparently," it continued, "the forward bolt of the side-bearing plate on the right side of the rear bolster had been missing some time prior to the derailment, and the rear bolt became sheared during the derailment. As a result of the forward bolt not being in place, the plate pivoted on the rear bolt and swung outward and thereby increased the normal clearance of the bearing 1¼ in. None of the wheels of the engine or the tender, except the right No. 4 tender-truck wheel, bore any scars or marks to indicate they had



NORTH WESTERN EXHIBITS SAFETY DEVICES.—A display designed to demonstrate how automatic train control, block signals and braking equipment insure the safety of passengers is on exhibition at the Chicago & North Western's Chicago passenger terminal. The progress of a train through five signal blocks is traced on an illuminated chart, illustrating graphically how the signals operate. An actual searchlight signal duplicates the indications displayed by one of the miniature signals. The movement of the train along the chart operates an indicator light on an electri ally locked switch. Two operating Mars safety lights attract passengers to the exhibit as they pass through the waiting room. The display opened June 5 and will be operated through August 1

been in abnormal contact with the track structure. . . .

How the Accident Occurred

"It is apparent that the rear tender truck was the first to be derailed, as the couplers at the rear of the tender and at the front of the first car had rested on top of the coupler of the tender during the process of derailment. When the derailment occurred the tender was loaded with coal to a height of about 16 ft. above the level of the tops of the rails, and about 8,000 gal. of water remained in the cistern. Because of track curvature, small irregularities in alinement, surface and gage of the tracks and the brakes being applied, the tender body would rock to the extent permitted by the side bearings. The tender bed was of the one-piece cast-steel type, and therefore no torsional easement could occur.

"Considering the marks on the track, on the rear tender truck, particularly on the tread of the right No. 4 wheel, and the overturned rail on the high side of the curve, it appears that as the train was approaching the point of derailment the heavily loaded tender rolled to the right. Then, because of the displaced side-bearing plate, the tender rolled excessively, and there was considerable stress exerted upon the right front side-bearing, then the tender rolled to the left and momentarily most of its weight was shifted to the left wheels and this action lifted the right wheels of the tender truck.

"Because of the track curvature, considerable pressure was exerted against the high rail by the right front wheel of the rear truck and, when the load was lifted to the left, this wheel was forced suddenly over the top of the high rail and the right rear wheel dropped inside the rail, which was then canted outward, and the left front wheel of the rear truck dropped inside the low rail. When the high rail overturned, the rear of the tender swung to the east and the general derailment followed."

The last class 3 repairs on the locomotive had been completed March 13, and the last monthly inspection and repairs were completed April 11. The last trip inspection and repairs were completed on April 24, the day before the accident. The accumulated mileage since the class 3 repairs was 5,137 miles.

Divisions Received by H. & M. Found Reasonable by I.C.C.

The Interstate Commerce Commission has found not to be unreasonable or inequitable the divisions which the Hudson & Manhattan receives out of passenger revenues from the joint service it maintains with the Pennsylvania between Harrison, N. J., and Newark and points on the P.R.R. lines west thereof, on the one hand, and the H. & M. terminals in New York, on the other.

At the time oral argument was held in the case, the H. & M. divisions, which became effective October 1, 1947, after a previous adjustment in its favor two months earlier, were 9.16 cents per passenger transported over its downtown line into Hudson Terminal, New York, and 10.16 cents per passenger carried on the uptown line which terminates at West 33rd street. As reported in *Railway Age* of January 24, page 61, Examiner E. L. Koch in a proposed report recommended that the divisions be increased to 11.5 cents and 12.5 cents, respectively.

The commission also approved the present H. & M. division of 5 cents per passenger handled in the joint-rate service with the P.R.R. in which the H. & M. carriers to New York passengers (principally commuters) leaving P.R.R. trains at the latter's Exchange Place station in Jersey City.

According to the commission, joint service divisions to the H. & M. of 11.5 cents on the downtown line and 12.5 cents on the uptown line would produce rates of return on the respective joint-service investments of about 7.40 per cent to the H. & M. and 1.76 per cent to the P.R.R., without allowing for reduced operating expenses by reason of an estimated decline of 13.7 per cent in the joint-service traffic volume under 1945. Such a return to the Pennsylvania, the commission said, is lower than the circumstances warrant. The report added that the joint traffic as a whole is more profitable to the H. & M. than any of its other services. The normal-year rates of return on the combined investments in the joint-service and joint-rate operations by the respective roads will approximate 3.98 per cent for the H. & M. and 2.52 per cent for the P.R.R., it stated.

The commission also said that it was unimpressed by the argument that the H. & M.'s divisions should be increased by reason of the fact that New York passengers of the Erie and Delaware, Lackawanna & Western using the H. & M. pay the local interstate fare of 10 cents in addition to the line-haul fare of those roads, whereas the P.R.R.'s New York passengers using the same lines of the H. & M. pay only a line-haul fare. The joint services of the H. & M. and P.R.R., it pointed out, are conducted under contractural arrangements, freely entered into by the parties, which afford to the P.R.R.'s passengers, "faster and more accommodating transportation," at lower through rates, than is accorded the Erie or D. L. & W. passengers. "But," it added, "there is no claim or evidence that this difference in treatment results in unlawful discrimination, and nothing in those contracts preclude complainant from entering into similar arrangements with the Erie and Lackawanna."

The commission also held that it was unable to assume that the financial need of the H. & M. is any greater than that of the P.R.R. It noted that the passenger-service operating ratios of the P.R.R. indicate that, at least with respect to its passenger operations, it is in no

better financial position than the H. & M. At the same time, it observed that the P.R.R. is among railroads seeking a "substantial increase" in freight rates.

The decision brought a dissent from Commissioner Splawn, who was joined in his expression by Commissioner Aitchison. The H. & M. "affimatively established" that the present divisions are unreasonable and inequitable, Commission Splawn said, adding that the complainant should have "larger divisions" from such traffic. Commissioner Alldredge did not participate in the disposition of the case.

Status of R.E.A. Employees Subject of R.R.B. Hearing

The Railroad Retirement Board has set August 10 as a hearing date for the purpose of determining whether joint agents, merchant agents, branch agents and certain other individuals performing express work should be classified under the Railroad Retirement Acts of 1935 and 1937 and the Railroad Unemployment Insurance Act, and whether the Railway Express Agency is entitled to a refund of contributions under the latter statute, based on the compensation of such individuals. The hearing will be held at Chicago before Examiner O. M. Funk.

Unions Hold District Court Lacks Power to Discharge Injunction

Because of appeals taken and still pending in the Court of Appeals for the District of Columbia, the federal district court for District of Columbia lacks jurisdiction to discharge the permanent injunction which Justice T. Alan Goldsborough issued earlier this month to restrain the three holdout operating unions and their leaders from staging a strike, it was asserted this week by counsel for the brotherhoods. The unions' contention was set out in their reply to a motion filed with the district court by the Department of Justice to discharge the injunction, as noted in *Railway Age* of July 24, page 107.

The unions also observed that the Department of Justice "merely asserts," without any factual showing other than that to be implied from the return of the properties to their private owners, that a "settlement of the underlying labor disputes . . . has been reached." In this connection, they attached to their reply an affidavit of Alvanley Johnston, grand chief engineer of the Brotherhood of Locomotive Engineers, and D. B. Robertson, president of the Brotherhood of Locomotive Firemen & Enginemen, which, they said, "sets out the facts."

The affidavit refers to the "proposal for settlement," drawn up by Dr. John R. Steelman, assistant to President Truman, (see *Railway Age* of July 17, page 34). It notes that although the parties to the settlement have been in almost continual conference since July 8 in an effort to agree upon the rules in dispute, certain of the rules still remain unsettled and have not as yet been mediated or decided by Dr. Steelman.

The affidavit also states that while the "proposal for settlement" provided for an increase of $1.24 per day, as compared with a minimum of $3 per basic day sought by the three brotherhoods in the notice they served on the carriers last September, the wage request limited to the difference between the amount granted and the amount requested is pending and unsettled and "will be the subject of negotiation by the committees representing the respective disputants pursuant to their original authority."

E. A. Nash Reappointed Chairman Of C. of C. Transport Committee

Evans A. Nash, president of the Yellow Transit Co., Oklahoma City, Okla., has been reappointed chairman of the Transportation and Communication Committee of the Chamber of Commerce of the United States for 1948-49. Among other members of the committee are C. McD. Davis, president of the Atlantic Coast Line; F. G. Gurley, president of the Atchison, Topeka & Santa Fe; R. E. Woodruff, president of the Erie; and L. O. Head, president of the Railway Express Agency. Mr. Gurley also is a member of the chamber's board of directors.

Greyhound's Stock Acquisitions Subject of Commission Probe

The Interstate Commerce Commission has instituted an investigation on its own motion in order to determine whether the acquisition by the Greyhound Corporation, of Chicago, of stock interests in Southeastern Greyhound Lines, and Central Bus Lines of Cookeville, Tenn., was in violation of the Interstate Commerce Act and the Clayton Act. The commission set the proceeding, No. MC-F-3910, for hearing on September 15 at its Washington, D. C., offices. Commissioner Mahaffie and Examiner Mohundro will preside.

The commission said the effect of stock acquisitions Greyhound may have accomplished may be to substantially lessen competition between the three carriers, to restrain commerce or to tend to create a monopoly.

Freight Car Loadings

Loadings of revenue freight in the week ended July 24 totaled 882,576 cars, the Association of American Railroads announced on July 29. This was a decrease of 9,961 cars, or 1.1 per cent, below the preceding week, a decrease of 37,362 cars, or 4.1 per cent, under the corresponding week last year, and a decrease of 27,947 cars, or 3.1 per cent, below the equivalent 1946 week.

Loading of revenue freight for the week ended July 17 totaled 892,527 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading
For the Week Ended Saturday, July 17

District	1948	1947	1946
Eastern	151,434	158,428	164,971
Allegheny	181,549	195,159	195,779
Pocahontas	75,231	67,358	71,604
Southern	131,460	130,365	136,961
Northwstrn.	138,354	145,594	143,196
Ctrl Wstrn.	142,672	149,005	140,399
Southwstrn.	71,827	73,826	68,586
Total Wstrn. Districts	352,853	368,425	352,181
Tot. All Rds.	892,527	919,735	921,496
Commodities:			
Grain and grain pdts.	66,903	71,933	63,526
Livestock	10,218	13,019	21,823
Coal	195,811	181,264	190,386
Coke	12,936	13,780	13,385
Forest pdts.	51,833	49,563	50,994
Ore	85,205	90,982	77,856
Mdse. l.c.l.	97,290	110,234	119,351
Miscellaneous	372,331	388,960	384,175
July 17	892,527	919,735	921,496
July 10	755,760	807,117	895,082
July 3	757,366	629,204	679,775
June 26	888,582	846,141	879,544
June 19	906,744	901,296	858,423
Cumulative total, 29 weeks	23,172,853	24,025.653	21,512.215

In Canada.—Carloadings for the week ended July 17 totaled 77,702 cars as compared with 76,558 cars for the previous week and 77,286 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
July 17, 1948	77,702	29,904
July 19, 1947	77,286	33,266
Cumulative totals for Canada:		
July 17, 1948	2,142,049	1,003,636
July 19, 1947	2,095,993	1,066,046

Canadian Roads Seek Freight Rate Increase

Railroads operating in Canada have applied to the Board of Transport Commissioners for authority to effect a general 20 per cent increase in freight rates, and to apply a 15 per cent increase on an interim basis, pending the board's decision on the proposed permanent adjustment. The increase is necessary, the carriers stated, because their expenses have rapidly increased, particularly as a result of the wage increase granted their employees early this month, the annual cost of which to the principal Canadian roads is estimated to exceed $75,000,000.

Steel Industry Agrees to Meet Requirements of Armed Forces

Secretary of Commerce Charles Sawyer has announced approval by the Steel Products Advisory Committee of a proposed "voluntary" agreement to provide 105,273 tons of steel products monthly through February 28, 1949, to meet requirements of the armed forces. This would provide steel products at the annual rate of 1,269,000 tons, which is the amount designated by the armed forces as necessary to meet their requirements for the current fiscal year.

Steel products would be made avail-

able under the proposed agreement directly to armed forces procurement agencies and to persons who need such steel products to fill contracts for the armed forces. This applies to subcontracts as well as prime contracts, provided they have been designated by the armed forces as entitled to benefits of the proposed agreement.

It also was announced that the committee has approved a proposed voluntary agreement to provide approximately 20,000 tons of steel monthly through February 28, 1949, for the production and repair of barges. Operation of that agreement would be supervised by the Office of Defense Transportation.

Sweet, Bureau of Finance Director, Retires; Boles Named Successor

The Interstate Commerce Commission has announced the voluntary retirement, effective July 31, of O. E. Sweet as director of its Bureau of Finance. At the same time, it announced the selection of C. E. Boles, present assistant director of the bureau, as successor to Mr. Sweet, effective August 1, and the selection of R. T. Boyden, chief of the loans and reorganizations section of the bureau, as successor to Mr. Boles, also effective August 1.

Railroad Fair's Attendance Up to Expectations

The railroad fair at Chicago attracted 321,413 paid admissions from its opening on July 20 through July 26—an average of 45,916 persons a day—which is very close to the average required to meet the original estimate of the fair's management that 2,000,000 persons would attend during the originally planned six weeks' run. A total of 72,131 persons paid their quarters on Saturday, July 24.

The first state governor to take part in the fair was L. C. Hunt of Wyoming, who made an appearance on horseback on Wyoming day, July 22.

A high-light of the second day of the fair, July 21 — designated "Chicago & North Western day," — was a world premiere of the motion picture "Song of the Pioneer" following the last presentation of the pageant in the 5,000-seat grandstand on the lakefront. Norman Ross, who announces the railroad's "400"-Hour daily morning broadcast, served as master of ceremonies. The movie, in full color and sound, is a graphic history of Chicago's first railroad, and emphasizes the role played by William Butler Ogden, first mayor of Chicago and first president of Galena & Chicago Union, in the city's growth. Following its premiere, the "Song of the Pioneer" became part of the fair's regular attractions being shown daily at 11:30 a.m. and 12:30, 1:30, 5:30 and 7 p.m. in the railroad's main exhibit at the fair.

The preview parade which introduced the fair to Chicago's public on July 19, inlcuded float replicas of the Baltimore & Ohio's "Tom Thumb" and the Wabash's "Rogers," first locomotive to operate in Illinois. The float of the Grand Trunk Western carried a reproduction of the first newspaper printing press ever used on a moving train. The original was used by young Thomas A. Edison while he was a Grand Trunk newsboy and candy "butcher."

Train Radio Installed On the Erie

On July 27 the Erie gave a public demonstration of its new space-radio train communication system installed on 315 miles of route between Marion, Ohio, and Salamanca, N. Y., including equipment on 15 cabooses and 16 Diesel-electric road locomotives and in 15 wayside offices. The locomotives are the double-end type, with complete radio equipment in each of the two ends, thus totaling 30 independent sets of locomotive radio apparatus in service. Plans are underway to extend the system west from Marion to Chicago, and east from Salamanca to Jersey City, thus completing the entire 999 miles between Chicago and New York.

The radio equipment on this installation utilizes two frequencies—160.05 megacycles for communication between the caboose and locomotive of a train or trains, and 159.09 mc. for communication between wayside offices and trains, as well as between offices. The 15 wayside radio stations are spaced approximately even distances to give coverage over the 315 miles between Marion and Salamanca. Because of irregular terrain, the antennas for some wayside stations are several miles from the controlling offices. For example, the Mansfield, Ohio, office actually is "aired" from an antenna at Ontario, 7.2 miles west of Mansfield.

The project was planned and installed by Erie forces under the direction of F. H. Menagh, superintendent of communications, in cooperation with the engineers of the Farnsworth Television & Radio Corp., Ft. Wayne, Ind., which furnished the radio equipment. An illustrated article giving a full description of the installation will appear in an early issue of *Railway Age*.

ORGANIZATIONS

The **American Association of Baggage Traffic Managers** will hold their annual meeting at the Cavalier Hotel, Virginia Beach, Va., October 25-27, inclusive.

The next meeting of the **American Railway Magazine Editors' Association** will be at Pinehurst, N. C., October 17, 18 and 19.

SUPPLY TRADE

Norman C. Naylor, whose retirement as vice-president of the American Locomotive Company and subsequent election as vice-president of the **Union Asbestos & Rubber Co.,** at Chicago, was reported in *Railway Age* of July 3, was born on June 3, 1881, at Rochester, N. Y. He began his career as an office boy with McKee-Fuller & Co., which was absorbed by the Steel Tired Wheel Company in 1897. The latter firm was likewise absorbed in 1902 by the Railway Steel Spring Company, for which

Norman C. Naylor

Mr. Naylor later became sales agent. With the purchase in 1926 of the Railway Steel Spring Company by Alco, he became district sales manager in charge of the Chicago office for both companies. Mr. Naylor was advanced in 1930 to vice-president in charge of western sales offices, at Chicago, and in 1938 he was also elected a director of Alco. In addition to his new post as vice-president of Union Asbestos, he continues as a director of Alco.

J. Louis Foerstner, traffic manager of the **Jones & Laughlin Steel Barrel Co.,** St. Louis, Mo., will retire on August 1. Mr. Foerstner entered railway service with the Missouri Pacific in the freight claim department in 1891. In 1911, he went with the Western Weighing and Inspection Bureau. He entered the service of Wackman Welded Ware Company—later taken over by the Jones & Laughlin Steel Barrel Co. as traffic manager in 1927.

Whitley B. Moore, formerly director of all sales of the **Timken Roller Bearing Company,** has been elected vice-president in charge of sales, succeeding **L. M. Klinedinst,** who has retired after 43 years of service.

Milton Gardner, regional service manager of the **Electro-Motive Division** of General Motors Corporation, St. Louis, Mo., has been appointed district sales manager, with headquarters remaining

at St. Louis. Mr. Gardner first came with Electro-Motive in February, 1938, beginning work as a service engineer. He held various positions in the service department and then, on July 1, 1946, was promoted to regional service manager at St. Louis, the position he held at the time of his promotion. **L. M. Williams,** sales representative, St. Louis region, has been appointed manager of the branch warehouse and service repair shop at Emeryville, Cal. **J. E.**

Milton Gardner

O'Leary, assistant regional service manager at St. Louis, becomes regional service manager at that point. Other appointments in the St. Louis region include **G. C. Smith,** assistant regional service manager; **Guthrie Hill,** district engineer; **E. A. Tucker,** service engineer, and **Rene Pommier,** regional parts representative. **O. W. Anglemier** has been appointed service engineer with headquarters at Louisville, Ky., a new territory established to cover increased operation of General Motors Diesel locomotives in that area.

M. R. Hanna, engineer of the Motor Engineering division at the **General Electric Company's** Erie Works since 1926, retired recently after 45 years' service with the company.

John H. Bartol, formerly passenger sales supervisor of American Air Lines, has joined the **W. B. Connor Engineering Corporation** as director of the air recovery division.

Herbert H. Warren has been appointed assistant manager of the New York branch of the **Electric Storage Battery Company.** Mr. Warren joined Exide in 1921 and first worked at assembling industrial and automotive batteries in the company's New York depot. Three years later he was transferred to the New York branch and was assigned to engineering and sales work. During World War II, he served in the 762nd Railway Shop Battalion in the Persian Gulf Command from 1943 to 1945. In the latter year he was transferred to the European theater of operations and served as battalion executive officer with the rank of major. In January, 1946, Mr. Warren was released from

Herbert H. Warren

active duty and returned to Exide, where he was assigned to engineering, railway and industrial sales.

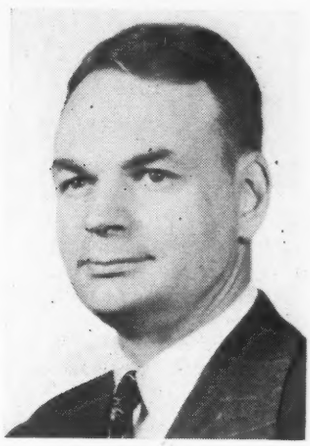
Donald A. MacNeil has joined the **Butler Manufacturing Company,** Kansas City, Mo., as special representative for railroads, with headquarters at 624 South

Donald A. MacNeil

Michigan avenue, Chicago. Mr. MacNeil was formerly associated with the Kelly Steel Works, Inc., Chicago, as vice-president, and before joining the Butler Manufacturing Company was district manager for Tube Turns, Inc., at Chicago.

The **Minneapolis-Honeywell Regulator Company** has announced the following promotions and personnel changes in its transportation division: **C. M. Sanders** has been promoted to western area manager, with headquarters in Chicago, to succeed **Dale Wissmiller,** who has been transferred to the commercial division staff; **A. G. Buckley,** formerly of the Chicago office, has been placed in charge of the transportation division's new Cleveland, Ohio, office; **D. Luchtman** has been appointed sales engineer in Chicago, succeeding Mr. Buckley, and **Gerald A. Loew** has been appointed division engineer, with headquarters in Minneapolis, Minn.

Mr. Sanders was graduated from Rice Institute with a degree in engineering, after which he worked in the air conditioning division of the Westinghouse Electric Corporation. He joined the United States Army in 1942, serving as captain and radar officer, and following his release joined Honeywell in 1946. He worked in the specialties division until his transfer to the transportation division in 1947.



C. M. Sanders

Mr. Buckley was graduated from the University of Kansas with a degree in engineering and worked for several heating and air conditioning firms before he joined Honeywell's St. Louis, Mo., branch office. In 1941 he was transferred to the Memphis, Tenn.,

A. G. Buckley

branch and, in 1943, to the Chicago staff. He joined the transportation division two years later as a sales engineer, the position he held until his latest promotion.

Mr. Luchtman was graduated from Purdue University and the Boeing school of meteorology. He served with the United States Navy as an officer-

pilot and later as an air line pilot captain for United Airlines. He joined Honeywell early this year.

Mr. Lowe is an electrical and mechanical engineering graduate of Marquette University. He worked in the industrial control division of the Square D. Company and was assistant engineer in the development section of the Allis Chalmers Manufacturing Company before joining Honeywell's transportation division early in 1947, as an engineer.

D. Luchtman

Gerald A. Loew

OBITUARY

Harry G. Lewis, president of the Electric Service Manufacturing Company, died on July 15. Mr. Lewis was born in England in 1876 and came to the United States at an early age. He joined Electric Service Manufacturing in 1901 and in 1916 was appointed sales manager. He was elected vice-president in 1919 and, in 1923, joined the board of directors. He was appointed sales director in 1937 and general manager in 1944. Mr. Lewis has been president of the company since April, 1945.

EQUIPMENT AND SUPPLIES

FREIGHT CARS

The board of directors of the **Chesapeake & Ohio** has authorized the purchase of an additional 1,000 coal cars, at a cost of $4,000,000. These cars, to be built by the American Car & Foundry Co., will be 70-ton hoppers, of all-welded construction. Their purchase brings to 10,000 the total bought by this company since January, 1947.

The **St. Louis-San Francisco** has placed orders for 300 55-ton open-top hopper cars, bringing to 1,000 the total number of such cars ordered this month. The cars will be constructed by the Pullman-Standard Car Manufacturing Company at its Bessemer, Ala., plant.

LOCOMOTIVES

The **New York, Chicago & St. Louis** has ordered 10 steam freight locomotives of the 2-8-4 type from the Lima-Hamilton Corporation. These locomotives will have roller bearings on the engine truck and drivers and will cost $2,252,000. Delivery is expected in December, 1948, and January, 1949.

FINANCIAL

Ann Arbor.—*Annual Report.*—Operating revenues of this road last year amounted to $7,692,424, compared with $5,962,140 in 1946. Operating expenses totaled $6,130,495, compared with $5,417,973. Fixed charges were $245,003, compared with $247,601. Net income was $412,391, compared with a net loss of $117,305. Current assets at the end of the year were $3,841,770, compared with $3,099,258. Current liabilities were $1,399,172, compared with $1,096,533. Long term debt was $6,053,144, compared with $6,186,121.

Chicago Great Western.—*Repayment of R.F.C. Loan*—This railroad has paid $1,000,000 to the Reconstruction Finance Corporation, thereby reducing to $3,000,000 its original loan of $6,393,870. The management anticipates that "if conditions remain favorable" the R.F.C. loan will shortly be repaid in full. When that is the case, the outstanding debt of the company — exclusive of equipment obligations — will be reduced to about $11,000,000.

Denver & Rio Grande Western.—*Annual Report.*—Operating revenues of this company in 1947 amounted to $58,743,851, compared with $54,363,959 in the preceding year. Operating expenses totaled $43,960,564, compared with $46,521,675. Fixed charges were $2,516,830, compared with $2,304,029. Net income was $4,105,739, compared with a net deficit of $1,595,813. Current assets at the end of the year were $43,793,103, compared with $47,106,650. Current liabilities were $23,780,457, compared with $23,794,638. Long term debt was $84,522,651, compared with $84,505,613.

Great Northern.—*New Director.*—James F. Oates, Jr., chairman and chief executive officer of the Peoples Gas Light & Coke Co., Chicago, has been elected a director of this company. He succeeds Nicholas Stockhammer of New York, who has resigned.

Northern Pacific.—*New Director.*—Walter H. McLeod, president of the Missoula Mercantile Company, Missoula, Mont., has been elected a director of this company.

St. Louis-San Francisco.—*Annual Report.* Operating revenues of this road last year were $110,018,735, compared with $96,656,712 in 1946. Operating expenses were $86,362,270, compared with $84,741,533. Fixed charges were $2,979,704, compared with $11,713,873. Current assets at the end of the year amounted to $61,786,814. Current liabilities were $25,405,869. Long term debt was $121,942,100. (The St.L.-S.F. was reorganized on January 1, 1947.)

St. Louis Southwestern.—*Annual Report.*—Operating revenues of this road in 1947 were $54,642,987, compared with $46,646,702 in the preceding year. Operating expenses were $33,316,140, compared with $32,640,969. Fixed charges totaled $2,570,653, compared with $3,015,037. Net income amounted to $7,223,739, compared with $4,665,668. Current assets at the end of the year were $23,883,582, a decrease of $7,040,660. Current liabilities were $12,910,471, an increase of $5,244,623. Long term debt was $ 2,653,891, a decrease of $12,136,472.

New Securities

Applications have been filed with the Interstate Commerce Commission by:

Chesapeake & Ohio.—To assume liability for $3,600,000 of equipment trust certificates, the proceeds of which will be applied toward the purchase of the following equipment, estimated to cost $3,690,692:

Description and Builder	Estimated Unit Cost
12 type 0-8-0 switching locomotives, each with 8,000-gal. tenders (Baldwin Locomotives Works)	$113,371
6 type 2-6-6-6 freight locomotives, each with 25,000-gal. tenders (Lima-Hamilton Corp.)	388,371

The certificates, to be sold on the basis of competitive bidding, would be dated September 1 and would mature in 10 annual installments of $360,000, starting September 1, 1949.

Western Maryland.—To assume liability for $5,300,000 of series M equipment

trust certificates, the proceeds of which will be applied toward the purchase of the following equipment:

	Description and Builder	Estimated Unit Cost
1,000	steel coal cars (Bethlehem Steel Company)	$3,925
50	70-ton gondola cars (Pressed Steel Car Company)	5,935
200	standard size gondola cars (Greenville Steel Car Company)	4,875
50	automobile box cars (Greenville)	7,065
200	box cars (Pressed Steel)	5,449

The certificates, to be sold on the basis of competitive bidding, would be dated August 15, and would mature in 10 annual installments of $530,000, starting August 15, 1949.

Division 4 of the I.C.C. has **authorized:**

Pennsylvania.—To assume liability for $9,900,000 of series T equipment trust certificates, part of a proposed overall issue of $39,240,000 of series T certificates, the entire proceeds of which will be applied toward the purchase of equipment estimated to cost $49,053,500, as outlined in *Railway Age* of April 17, page 66. The certificates will be dated May 1 and will mature in 15 annual installments of $660,000, starting May 1, 1949. The report also approves a selling price of 99.145 with a 2½ per cent interest rate, the bid of Harriman Ripley & Co. and Lehman Brothers, on which basis the average annual cost will be approximately 2.63 per cent. The certificates were reoffered to the public at prices to yield 1.5 per cent to 2.75 per cent, according to maturity.

Richmond, Fredericksburg & Potomac.—To assume liability for $2,400,000 of equipment trust certificates, the proceeds of which will be applied toward the purchase of equipment estimated to cost $3,017,000, as outlined in *Railway Age* of July 10, page 156. The certificates will be dated September 1 and will mature in 40 quarterly installments of $60,000, starting December 1. The report also approves a selling price of 100.319 bid with a 2¼ per cent interest rate, the bid of Halsey, Stuart & Co., on which basis the average annual cost will be approximately 2.18 per cent. The certificates were reoffered to the public at prices to yield 1.2 per cent to 2.375 per cent, according to maturity.

Wheeling & Lake Erie.—To assume liability for $3,200,000 of series P equipment trust certificates, the proceeds of which will be applied toward the purchase of 1,000 hopper cars, estimated to cost $4,000,000, as described in *Railway Age* of June 26, page 138. The certificates will be dated July 15 and will mature in 20 semi-annual installments of $160,000, starting January 15, 1949. The report also approves a selling price of 99.14 with a 2 per cent interest rate, the bid of Harris, Hall & Co. and associates, on which basis the average annual cost will be approximately 2.17 per cent. The certificates were reoffered to the public at prices to yield 1.25 per cent to 2.30 per cent, according to maturity.

Dividends Declared

Atlanta & West Point.—$2.00, payable August 2 to holders of record July 24.

Atlantic Coast Line.—$1.00, payable September 13 to holders of record August 18.

Chicago & Eastern Illinois.—Class A (resumed), $1.00, payable August 16 to holders of record August 2.

Erie & Kalamazoo.—$1.75, payable August 2 to holders of record July 19.

Georgia.—$1.75, quarterly, payable July 15 to holders of record July 1.

International of Central America.—5% preferred (accum.), $1.25, payable August 16 to holders of record August 5.

Lake Superior & Ishpeming.—25¢, payable July 28 to holders of record July 20.

Louisiana & Missouri River.—7% guaranteed preferred, $3.50, semi-annually, payable August 1 to holders of record July 23.

Louisville, Henderson & St. Louis.—common, $4.00, semi-annually; 5% non-cum preferred, $2.50, semi-annually, both payable August 15 to holders of record August 2.

Louisville & Nashville.—88¢, quarterly, payable September 13 to holders of record August 2.

Michigan Central.—$25.00, semi-annually, payable July 31 to holders of record July 16.

Mine Hill & Schuylkill Haven.—$1.00, semi-annually, payable August 2 to holders of record July 15.

Northern of New Hampshire.—$1.50, quarterly, payable July 31 to holders of record July 15.

Peoria & Bureau Valley.—$2.50, semi-annually, payable August 10 to holders of record July 23.

Western of Alabama.—$3.50, payable August 2 to holders of record July 24.

Wheeling & Lake Erie.—common, 75¢, quarterly; extra, 68¾¢, both payable October 1 to holders of record September 22.

Average Prices Stocks and Bonds

	July 27	Last week	Last year
Average price of 20 representative railway stocks	49.34	48.53	49.23
Average price of 20 representative railway bonds	90.87	90.86	90.03

CONSTRUCTION

Atlantic Coast Line.—This road has authorized the following projects, the probable costs of which are shown in parentheses: Reconstructing a steel bridge over the Northeast Cape Fear river, at Castle Hayne, N. C. ($120,150); installing telephone circuits between Waycross, Ga., and Atlanta ($102,465); improving passing track at Ruggles, N. C. ($42,896); improving passing track at Whitakers, N. C. ($20,591); yard tracks at Hartsville, S. C. ($31,384); extending Creston branch (1.89 miles), Four Holes, S. C., to Harleyville ($125,127); laying second track (2.4 miles) from Folkston, Ga., to Newell ($244,859); and laying additional tracks at Prairie Junction, Fla. ($228,695).

Central of New Jersey.—This road has awarded a contract to J. A. Roebling's & Sons Co., Trenton, N. J., for the renewal of cables on the Newark Bay bridge at Bayonne, N. J., at an estimated cost of $135,000.

Chesapeake & Ohio.—This company has announced plans for improving its facilities in the Russell, Ky., vicinity, including a $5,070,000 enlargement of the coal classification yards; $589,000 for additional stalls in the Russell roundhouse; $321,000 for additional double track; and $1,808,000 for other additional main and side tracks and signaling.

Chicago Great Western.—This road has announced that it expects to earn "little or no" net in 1949, for the reason that its management plans to "enter upon an expanded program of tracklaying and other improvements, for which it is anticipated steel will be available. Among improvements planned for 1949 are lengthening of passing tracks, rearranging and enlarging of yards, installation of end-to-end radio and other facilities to better serve the shipping public."

Chicago & Illinois Midland.—This company has contracted for a one-story brick and concrete block building, 28 ft. by 56 ft., which will house its car service department. The general contract has been awarded to the Evans Construction Company, Springfield, Ill.

Chicago, Rock Island & Pacific.—Construction of a $2,000,000 hump yard at Kansas City, Kan., is expected to start in August. The project, which will increase the capacity of the Rock Island's facilities at Kansas City to 4,500 cars, is scheduled for completion within a year. The hump yard will be equipped with electro-pneumatic retarders.

Pittsburgh & West Virginia.—This company has awarded a contract to W. K. & S. H. McPherson for the construction of a reinforced concrete Diesel engine pit at Rook yard, Greentree boro, Pa., at an estimated cost of $20,000.

Reading.—This company has awarded the following contracts: To the Kingston Construction Company, West Point, Pa., for the construction of a new highway to eliminate grade crossing at West Reading, Pa., at an estimated cost of $60,000; to the Empire Construction Company, Baltimore, Md., for the reconstruction of Bridge 201/66, at Williamsport, Pa., at an estimated cost of $250,000; and to Intrusion-Prepakt, Folcroft, Pa., for repairing Bridge 0/79, at Perkiomen Junction, Pa., at an estimated cost of $48,000.

Texas & Pacific.—Bids requested by this company in connection with its high-level crossing of the Morganza floodway near Red Cross, La., will be received until August 24, not August 28, as was incorrectly stated in *Railway Age* of July 17, page 56.

ABANDOMENTS

Applications have been filed with the Interstate Commerce Commission by:

Atlantic Coast Line.—To abandon that portion of its Western division between Anguilla, Ga., and Southern Junction, 6.1 miles. At the same time, it has asked the commission for authority to construct at those two points tracks connecting with its Southern division,

which closely parallels the line to be abandoned.

Chicago, Burlington & Quincy. — To abandon that portion of a branch line extending from Fall Creek, Ill., to Rockport, approximately 24 miles. According to the applicant, the line is being abandoned at the request of the federal government which is constructing a flood control project in the area involved.

RAILWAY OFFICERS

EXECUTIVE

George DeCamp Hughey, whose appointment as assistant vice-president and general manager of the Delaware & Hudson at Albany, N. Y., was reported in *Railway Age* of June 5, was born at Oakmont, Pa., on December 7, 1884, and attended Rensselaer Polytechnic Institute, Troy, N. Y. He was employed as a transitman by the Bureau of Surveys at Pittsburgh, Pa., from June, 1907, until January, 1909, when he went with the Carnegie Steel Company, at Mingo Junction, Ohio, in a similar capacity. Mr. Hughey entered railroad service in April 17, 1910, as transitman with the Bessemer & Lake Erie at Greenville, Pa., remaining with that road until January 1, 1913, when he went with the Delaware & Hudson as inspector, maintenance of way, at Albany. He became division engineer of the D. & H. at Plattsburg, N. Y., in August, 1917, transferring to Oneonta, N. Y., in October, 1921. On May 1, 1925, Mr. Hughey was promoted to superintendent at Plattsburg and on October 1, 1928, he became superintendent of transportation at Albany. He was appointed assistant general manager at Albany on April 1, 1945, which position he held until his recent appointment as assistant vice-president and general manager.

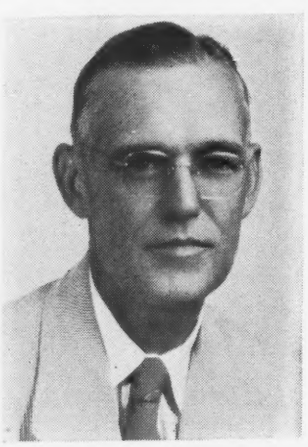
FINANCIAL LEGAL and ACCOUNTING

Leo J. Gosney, whose promotion to general auditor of the Western Pacific, with headquarters at San Francisco, Cal., was reported in *Railway Age* of June 19, was born at Lyonsville, Cal., on September 3, 1903. Mr. Gosney's railroad career began in 1919, when he joined the Sacramento Northern at Sacramento, Cal. He was subsequently employed for a time by the Southern Pacific, rejoining the S. N. in 1923. He later advanced to head accountant of the latter road, and in 1931 he joined the W. P. when it took over the accounting for the S. N. He was advanced to traveling accountant in 1927 and to special accountant for the general auditor in 1940. He was further promoted on July 1, 1946, to assistant general auditor, which position he held at the time of his recent promotion.

Roy E. Larson, whose promotion to treasurer of the Western Pacific, with headquarters at San Francisco, Cal., was reported in *Railway Age* of June 19, was born on November 28, 1900, at San Francisco, and was educated in the public schools and business colleges of that city. He began his railroad career with the W. P. in 1917, advancing to paymaster in 1922, cashier in 1928, and general cashier in 1935. Mr. Larson was appointed assistant treasurer on December 6, 1943, which post he held at the time of his recent advancement.

William G. Levy, whose promotion to auditor of freight and passenger accounts of the Western Pacific, with headquarters at Sn Francisco, Cal., was reported in *Railway Age* of June 19, was born at San Francisco on May 5, 1904. He entered railroad service in the passenger accounting department of the S. P. in 1922, and in the following year he became employed similarly with the W. P. Mr. Levy served in the freight accounting department from 1924 until 1937, at which time he was advanced to assistant auditor of freight and passenger accounts. He was serving in the latter position at the time of his recent promotion.

Robert H. Waterman, whose appointment as tax commissioner of the Texas & Pacific, International-Great Northern and the Gulf Coast Lines, with headquarters at Dallas, Tex., was reported in *Railway Age* of July 3, was born on August 30, 1901, at Abbott,



Robert H. Waterman

Tex. Mr. Waterman received his degree in civil engineering at Rice Institute in 1924, and in the following year he joined the engineering department of the T. & P. at Marshall, Tex. From November, 1928, to the time of his recent appointment, he served as assistant tax commissioner for the three roads.

Charles P. Russell, whose retirement as general auditor of the Western Pacific, with headquarters at San Francisco, Cal., was reported in *Railway Age* of June 19, was born at Los Angeles, Cal., on May 6, 1880. Mr. Russell entered railroad service with the Southern Pacific in 1898, serving successively as clerk in the motive power department at Sacramento, Cal., Dunsmuir, Portland, Ore., and San Francisco. He joined the W. P. as a clerk in 1906, and following service in various clerical positions, advanced to chief clerk in the accounting department at San Francisco in 1918. In 1921 he was advanced to assistant general auditor, which position he held until 1946, when he was further promoted to general auditor.

OPERATING

F. N. Stuppi, whose promotion to division superintendent of the Atchison, Topeka & Santa Fe at Amarillo, Tex., was reported in *Railway Age* of June 12, was born on June 20, 1909, at Magdalena, N. M. He began his railroad career with the Santa Fe in his home town as an apprentice operator and station helper in 1923. He served successively as secretary to division superintendent at Winslow, Ariz., and San Bernardino, Cal., and as secretary to general manager at Los Angeles, Cal., and was appointed transportation inspector at the latter point in 1941.

F. N. Stuppi

His next post was that of trainmaster at Needles, Cal., a position which he also held later at San Bernardino. Following completion of a special assignment with the Western Carriers' Conference Committee at Chicago in 1947, Mr. Stuppi returned to San Bernardino as trainmaster, being located there at the time of his recent promotion.

L. M. Olson, whose promotion to assistant general manager of the Atchison, Topeka & Santa Fe, at Los Angeles, Cal., was reported in *Railway Age* of June 12, was born on October 5, 1908, at La Junta, Colo. He entered railway service with the Santa Fe at La Junta in 1926, subsequently serving in various clerical positions in his home town, at Dodge City, Kan., and Chicago. Be-

News Department continued on next left-hand page

PROBABLY no railroad man need be told that every carload of C & O's record-breaking tonnage moved behind steam.

Nor will it surprise many that almost every ton made most of its miles behind Lima-built locomotives.

The significant point is this: Here is an example of what *modern* steam power can do. It is a special example, to be sure, but a concrete one. Those are real locomotives, making real miles, moving real tonnage—and lots of it. Almost to an engine, they are modern—modern from the rims up, from the pilots back.

Could any other type of power—including older steam locomotives—have equalled C & O's cost per ton-mile?

We doubt it. That's why we say there *is* a place for steam—and in this place, the modern steam locomotive can do, and is doing, **an outstanding job.**

It's worth thinking about.

C. & O. Sets All-Time Record, Ships 90 Million Tons of Coal

BY ROBERT J. BOWMAN

President Cheseapke e cake Railway Experiencing the greatest year of its history in 1947, the Chesapeake and Ohio Railway Co. anticipates an even larger volume of busb 1948. In record will be bettered with the completion. In the coming year. of two branch lines which will open up new coal areas Man new mines, along with widespread mechanization of existing mines, should increase materially the coal tonnage

this is steam at work

LIMA HAMILTON CORPORATION

DIVISIONS: *Lima, Ohio* — Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio* — Hooven, Owens, Rentschler Co.; Niles Tool Works Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

tween 1940 and 1945 Mr. Olson served as trainmaster at various points on the road, and in January of the latter year he was appointed acting superintendent at Clovis, N. M. He went to Slaton, Tex., on May 1, 1945, and, following

L. M. Olson

a brief period of service at that point, was transferred to Chicago as a member of the operating vice-president's staff. On June 1 of this year he was appointed superintendent at Emporia, Kan., where he was located at the time of his recent advancement.

Frank Cousar, assistant to the general superintendent of the Railway Express Agency at New York, has been appointed superintendent of motor vehicle equipment, with the same headquarters, succeeding **Frederick R. Maulsby,** who has retired. Mr. Cousar was born at Chicago, where he began his express service 27 years ago. From 1935 to 1943 he was

Frank Cousar

successively shop foreman and traveling supervisor at Chicago. In August, 1943, he was appointed assistant superintendent, motor vehicle equipment, for the Central departments. Three and a half years later he went to New York as assistant to the general superintendent, in which post he served until his present promotion. Mr. Cousar will have supervision over a nationwide fleet of 17,000 motor vehicle units.

Mr. Maulsby's express service began in San Francisco, Cal., more than 31 years ago as vehicle superintendent for the Western department of Wells Fargo & Co. He continued in that capacity when the various express companies were consolidated into a nationwide system in July, 1918. During the next ten years Mr. Maulsby was engaged in effecting the gradual changeover from horse-drawn equipment to complete motorization of the express fleet, a job that was completed in the Western departments of the express company in 1928. In March, 1933, he went to New York as special representative reporting to the president, and was placed in charge of the express agency's automotive department, later becoming general superintendent.

G. W. Svoboda, assistant trainmaster of the Atlantic Coat Line at Charleston, S. C., has been appointed assistant superintendent of the Charleston district, with the same headquarters.

Morton S. Smith, whose promotion to general superintendent of the Pennsylvania, with headquarters at Chicago, was reported in *Railway Age* of July 17, was born at Hughesville, Pa., and was graduated from Pennsylvania State College. He entered the service of the Pennsylvania in 1929, as an assistant on the engineer corps, Middle division, at Altoona, Pa., and in the same year advanced to assistant supervisor of

Morton S. Smith

track, serving in that capacity on the Baltimore, Philadelphia, Maryland, and Middle divisions. In 1933 he was promoted to supervisor of track on the Monongahela division, and, until 1939, served in that capacity on various divisions. Mr. Smith was appointed division engineer, Monongahela, division, in 1940, then, in February, 1943, was transferred to the Long Island, with headquarters at Jamaica, N. Y. In July, 1943, he was appointed superintendent of the Logansport division of the Pennsylvania at Logansport Ind., and he was again advanced, in October, 1944, to superintendent of freight transportation, Western region, at Chicago. In 1946 he was appointed superintendent of the road's Philadelphia division, with headquarters at Harrisburg, Pa., the post he held at the time of his most recent promotion.

P. D. Robinson has been promoted to superintendent of the Rio Grande division of the Southern Pacific at El Paso, Tex., as reported in the *Railway Age* of July 24, page 120. A photograph of Mr. Robinson and a biographical sketch appeared in *Railway Age* of March 6, 1948, page 78.

Edward J. Schmidt, assistant superintendent, motor vehicle equipment of the Central departments of the Railway Express Agency at Chicago, has been appointed assistant to the general superintendent of motor vehicle equipment at New York.

TRAFFIC

Elmer E. Zabriskie, district freight claim agent for the Erie at Cleveland, Ohio, has been promoted to assistant freight claim agent, with headquarters at the same point, to succeed **William T. Brennan,** who has been retired after 42 years of service with the road.

John R. Stevenson, whose appointment as general freight claim agent of the New York Central system at Buffalo, N. Y., was reported in *Railway Age* of June 12, was born at Brooklyn, N. Y., in 1887. He entered the service of the New York Central as claim clerk at New York in 1908 and was transferred

John R. Stevenson

to the freight claim department in 1911. In 1928 he became district freight claim agent at Rochester, N. Y., transferring to Chicago in 1945. On January 1, 1948 he became assistant general freight claim agent at Buffalo, which position he held until his recent appointment as general freight claim agent.

John W. Scott, Jr., whose promotion to executive general agent of the Kansas City Southern Lines, with headquarters

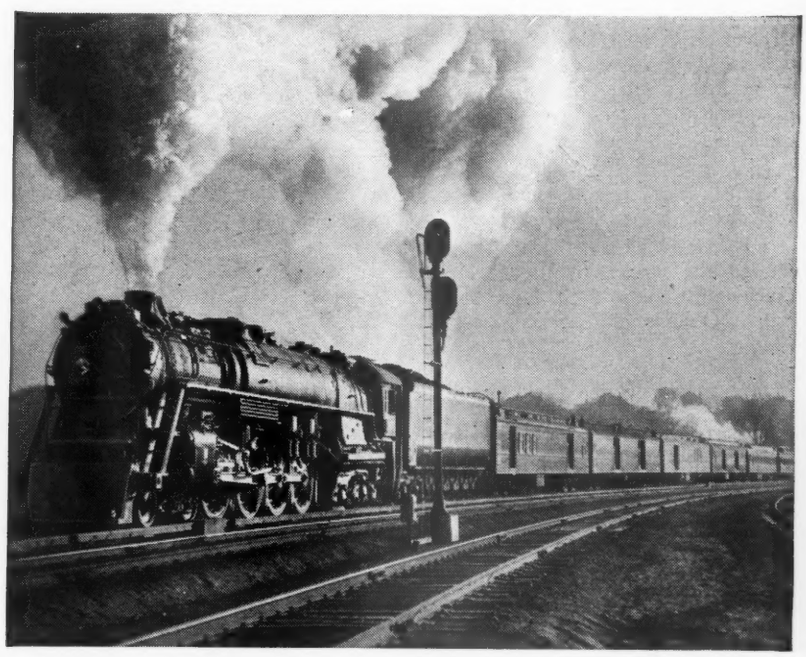
News Department continued on next left-hand page

Not only is the maximum utilization of every locomotive essential today, but each locomotive should be kept in top operating condition at all times.

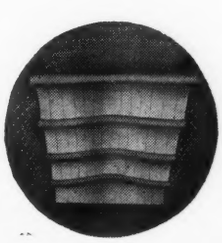
WITH *FEWER* LOCOMOTIVES TO DO *MORE* WORK

Even in the case of older locomotives that cannot be immediately modernized, it is important to keep their steaming efficiency as high as possible.

To secure all the power a locomotive is capable of producing, a 100% brick arch should be constantly maintained in its firebox. Whatever the type of firebox, a Security Sectional Arch will give efficient service with low maintenance costs.



HARBISON-WALKER REFRACTORIES CO.
Refractories Specialists



AMERICAN ARCH CO. INC.
60 East 42nd Street, New York 17, N. Y.
Locomotive Combustion Specialists

at Beaumont, Tex., was reported in *Railway Age* of July 24, began his railroad career as a stenographer in the traffic office of the Illinois Central at Shreveport, La., in 1927. Later in that year he accepted a position as chief clerk in the district freight office of the Southern, also at Shreveport, and in July, 1929, he joined the Louisiana &

John W. Scott, Jr.

Arkansas (part of the K. C. S. Lines) as a clerk in the office of the senior vice-president. He later advanced to chief clerk, and on September 1, 1939, he was transferred to Kansas City, Mo., as chief clerk in the office of the traffic vice-president. He was holding the latter position at the time of his recent advancement.

J. J. Pessler, whose appointment as freight claim agent of the New York Central system at Buffalo, N. Y., was reported in *Railway Age* of June 12, was born at Delhi, Ohio, in 1892. He entered the service of the Cleveland, Cincinnati, Chicago & St. Louis at Cincinnati, Ohio, in 1907, serving there and

J. J. Pessler

at Indianapolis, Ind., until December, 1931, when he was transferred to Buffalo following the consolidation of the New York Central and the C. C. C. & St. L. freight claim departments. He was chief clerk at Buffalo at the time of his recent promotion to freight claim agent.

Frank A. Wisberg, whose promotion to central traffic manager of the Chicago, Indianapolis & Louisville, at Chicago, was reported in *Railway Age* of July 17, was born on July 8, 1889, at Cincinnati, Ohio. He began his railroad career in 1907 with the Cleveland, Cincinnati, Chicago & St. Louis, subsequently holding various clerical positions at Cincinnati. Mr. Wisberg was appointed traveling freight agent of the Cincinnati Northern (part of the N.Y.C.) at Jackson, Mich., in 1920, and joined the Monon in 1922 as traveling freight and passenger agent. He served in the latter position at both Detroit, Mich., and Grand Rapids, and was advanced to general agent at Detroit in 1939. Mr. Wisberg was serving at Detroit at the time of his recent advancement.

C. W. Nelson, heretofore general agent of the Canadian National at Omaha, Neb., has been appointed general agent at San Francisco, Cal., succeeding **C. J. Piper,** who has retired.

Clyde P. Bowsher, whose retirement as freight traffic manager of the Missouri-Kansas-Texas at St. Louis, Mo., was reported in *Railway Age* of July 3, was born on November 16, 1879, at Millersburg, Ohio. He began his railroad career in 1899 as a stenographer in the passenger department of the Baltimore & Ohio at Cincinnati, Ohio, and

Clyde P. Bowsher

in June of that year joined the Katy as stenographer-clerk there. He was later transferred to St. Louis, and subsequently advanced through positions as traveling freight agent at Cincinnati, commercial agent at Louisville, Ky., and division freight and passenger agent at Oklahoma City, Okla. In 1920 he was appointed division freight agent at St. Louis, where he remained until 1929, when he became northern traffic representative at Chicago. From 1931 to 1932, he served as general freight agent at Kansas City, Mo., and from the latter year until 1937 he held a similar position at St. Louis. He was promoted to assistant freight traffic manager in 1938 and to freight traffic manager in February, 1947.

Earl B. Padrick has been elected chairman of the Trans-Continental and Western Passenger Associations with headquarters at Chicago.

O. J. Grimes has been appointed general traffic manager of the Denver & Rio Grande Western at Denver, Colo. The position of assistant general traffic manager, formerly held by Mr. Grimes, has been abolished.

R. J. McDermott, whose promotion to general passenger traffic manager of the Missouri Pacific Lines at St. Louis, Mo., was reported in *Railway Age* of July 24, was born on October 6, 1893, at St. Louis. He entered railway service with the St. Louis, Iron Mountain & Southern (now part of the M. P.), serving successively in the local freight and yard office. He subsequently ad-

R. J. McDermott

vanced to assistant to the general superintendent of transportation of the M. P. and, later, to assistant general superintendent of transportation. Mr. McDermott was advanced to vice-president and general manager of the Missouri Pacific Transportation Company (bus subsidiary of the M. P.) in 1943, in which position he was serving at the time of his recent promotion.

The Chicago, Rock Island & Pacific has announced the appointment of **Fred H. Fox** as district freight and passenger agent with headquarters at Indianapolis, Ind., succeeding **C. F. Lautenberger,** who died recently.

Harry L. Schaeffer, whose promotion to chief traffic officer of the Missouri Pacific Lines at St. Louis, Mo., was reported in *Railway Age* of July 24, was born at St. Louis on March 12, 1902, and attended Brown's Business College and Benton College of Law there, graduating from the latter in 1925. He entered railway service in April, 1916, as a messenger boy on the Missouri Pa-

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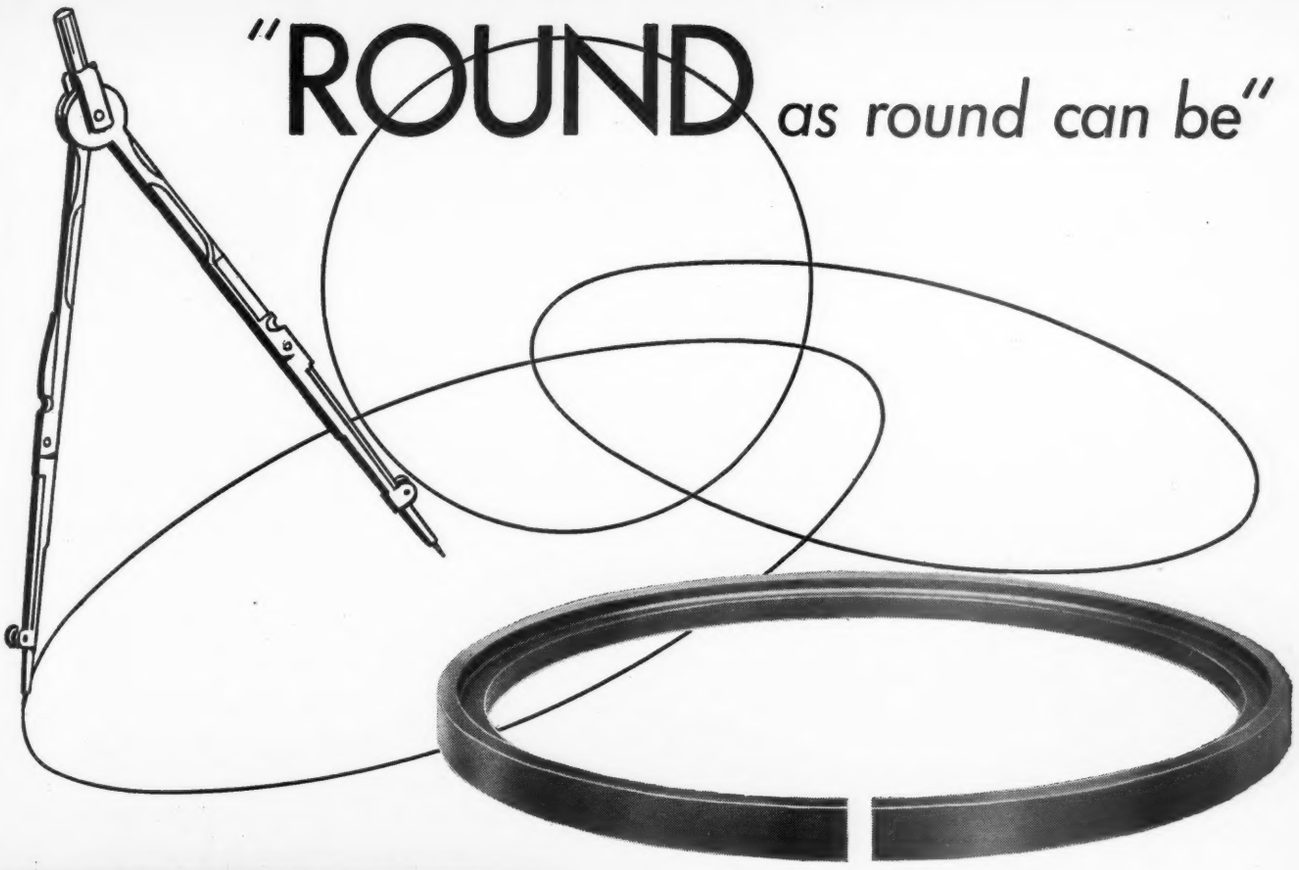

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cific at St. Louis, and was later advanced to office boy and clerk-stenographer at that point. In August, 1919, he went with the Missouri-Kansas-Texas as a clerk-stenographer at Wichita Falls, Tex., and four months later he was promoted to secretary to the superintendent at Sedalia, Mo. In March, 1920, Mr. Schaeffer returned to

Harry L. Schaeffer

the Missouri Pacific as secretary to the district engineer at St. Louis, later serving as secretary to the contract attorney, and assistant secretary to the general manager. In December, 1923, he was advanced to chief clerk to the passenger traffic manager, and in August, 1927, he was promoted to assistant general passenger agent at St. Louis. Mr. Schaeffer was transferred to Kansas City, Mo., in February, 1935, and in August, 1941, he was advanced to assistant passenger traffic manager at St. Louis. He was promoted to general passenger traffic manager in 1943 and to general freight traffic manager in 1946. Mr. Schaeffer was serving in the latter post at the time of his recent appointment.

William J. Boewer, whose promotion to general freight agent of the Missouri Pacific at St. Louis, Mo., was reported in *Railway Age* of July 24, was born at St. Louis on September 19, 1903. He entered railway service with the Rock Island-Frisco Terminal at St. Louis on January 18, 1918, as an office boy. In 1920 he was employed in the freight traffic department of the St. Louis-San Francisco at St. Louis, advancing to rate clerk. In 1927, he went briefly with the Southwestern Freight Bureau. Later in that year, Mr. Boewer joined the Missouri Pacific as rate adjustment clerk, and subsequently he advanced to commerce clerk and commerce agent. In 1943 he was appointed assistant general freight agent, and in 1944 was promoted to traffic assistant in the research department, which position Mr. Boewer held at the time of his recent appointment.

C. L. Butler, whose promotion to general freight traffic manager of the Missouri Pacific Lines at St. Louis, Mo., was reported in *Railway Age* of July 24, was born on August 15, 1898, at Lovelady, Tex. Mr. Butler first entered railroad service in 1920 as a clerk in the local freight office of the International-Great Northern (part of the M. P. Lines), at Palestine, Tex., and subsequently held various clerical positions in the freight claim department at that point. Mr. Butler later also served in several clerical capacities with both the Gulf Coast Lines (part of the M. P. lines) and with the M. P., and in 1934

C. L. Butler

was appointed assistant general freight agent. He became general freight agent in 1941, traffic assistant in the research department in 1943, and general freight agent again in 1944. Prior to his recent advancement, Mr. Butler had served as assistant freight traffic manager since April 1, 1945.

Ray T. Oliver, whose promotion to assistant freight traffic manager of the Missouri Pacific Lines at St. Louis, Mo., was reported in *Railway Age* of July 24, was born on December 22,

Ray T. Oliver

1900, in Stoddard county, Mo. He entered railroad service with the M. P. in 1918 as a clerk, serving successively in the road's local offices at Dexter, Mo., and Sikeston. He later held posts as traveling auditor at Jefferson City, Mo., traffic representative at Detroit, Mich., Helena, Ark., and Atlanta, Ga., and commercial agent at Birmingham, Ala. He was appointed general agent at Winston-Salem, N. C., in 1937, and was transferred to Cincinnati, Ohio, in 1940 and to Chicago in 1944. Mr. Oliver was advanced to assistant traffic manager at Chicago in 1946, and was holding this post at the time of his recent advancement.

F. E. Haasch has been appointed district freight service manager, Union Pacific, with headquarters at Boise, Idaho.

T. W. Bowdry, whose retirement as general passenger agent of the Chicago, Rock Island & Pacific at Fort Worth, Tex., was reported in *Railway Age* of May 29, was born on May 21, 1880, at Forth Worth. Mr. Bowdry entered railway service on July 18, 1895, as a messenger. After holding various jobs in the accounting department, Mr. Bowdry was transferred to the passenger traffic department in 1913, holding positions including chief rate clerk and chief clerk to the division passenger agent until May, 1935, when he was appointed general passenger agent. His retirement occurred after 52 years of continuous service with the Rock Island.

PURCHASES and STORES

H. J. Madison, whose promotion to general storekeeper of the Western Pacific, at Sacramento, Cal., was reported in *Railway Age* of June 19, was born on January 6, 1903, at San Francisco, Cal. He began his career with the W. P. as a machinist apprentice in 1918,

H. J. Madison

serving later as electrician apprentice. He entered the stores department as a laborer and advanced successively to store helper, store crane operator and section stockman. Mr. Madison was promoted to storekeeper at Sacramento in March, 1944, the position he held at the time of his recent appointment.

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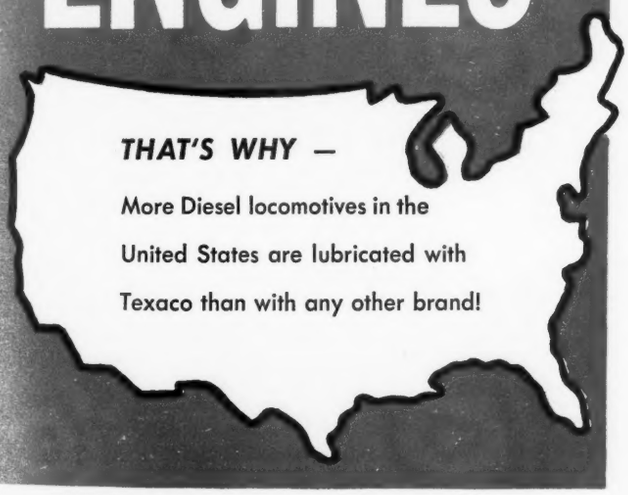
Kansas City Southern Lines Diesel freight locomotive — lubricated with *Texaco Dieseltex HD*.

CLEANER ENGINES



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J. P. Hogan has been appointed assistant to manager of stores of the Erie at Hornell, N. Y.

MECHANICAL

J. C. McElree, whose retirement as electrical engineer of the Missouri Pacific at St. Louis, Mo., was reported in *Railway Age* of June 12, was born in Republic county, Kan., on May 5, 1878. Mr. McElree entered railway service on September 1, 1904, as an electrician on the Illinois Central at Chicago, advancing to the positions of electrical foreman and assistant chief electrician by 1919, when he transferred to the Central of Georgia as electrical engineer. Mr. McElree went with the Missouri Pacific at St. Louis in 1923, holding the position of electrical engineer until his recent retirement.

G. H. Comer, division general car foreman of the New York Central system at Chicago, has been appointed superintendent of shop (East Buffalo car shop) with headquarters at East Buffalo, N. Y.

W. A. Hendricks, formerly traveling storekeeper of the Missouri-Kansas-Texas, has been promoted to tie and timber agent for the Katy at St. Louis, Mo. Mr. Hendricks fills the vacancy caused by the recent death of **J. H. Houghton.**

ENGINEERING and SIGNALING

Ralph R. Strother, whose retirement as assistant chief engineer of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha, at Chicago, was reported in *Railway Age* of July 10, was born on August 17, 1885, at Hubbard, Iowa. Mr. Strother was graduated by Iowa State College with a degree in civil engineering in 1909, and shortly thereafter joined the engineering department of the C. & N. W. In 1914 he became assistant engineer on field work for the C. St. P. M. & O., and in 1920 was appointed assistant engineer in charge of estimates. He was advanced to assistant chief engineer in 1929, and in 1938 was appointed also superintendent of ways and structures. Mr. Strother was elevated to chief engineer of the C. St. P. M. & O. in 1940, with headquarters at St. Paul, Minn., and held that post until March, 1943, when he went to Chicago as assistant chief engineer of the latter road and the C. & N. W.

Theodore L. Carlson, whose appointment as signal engineer of the Chesapeake & Ohio at Richmond, Va., was announced in *Railway Age* of July 17, was born on December 16, 1902, at Litchfield, Minn. Mr. Carlson attended Litchfield high school and Carleton College, subsequently taking university extension courses. He entered railroad service in March, 1923, with the Great Northern on signal construction and maintenance, and in October, 1925, he became signal draftsman in the general office at St. Paul, Minn. In April, 1928, Mr. Carlson went with the Norfolk & Western as signal draftsman at Roanoke, Va., remaining with that road until May, 1929, when he entered the service of the Chesapeake & Ohio as signal circuit designer at Richmond, Va. Mr. Carlson became chief circuit designer in August, 1940, and in December, 1944, he was appointed general signal inspector. He became circuit engineer in January, 1947, which position he held until his recent appointment as signal engineer.

William G. Harding, whose promotion to architect of the Wabash, with headquarters at St. Louis, Mo., was reported in *Railway Age* of July 17, was born at Livingston, Tex., on April 8, 1903. Mr. Harding received the degree of civil engineering in 1926 at Rice Institute, and shortly thereafter joined the Missouri Pacific Lines at

William G. Harding

Houston, Tex. He was employed successively as rodman, draftsman, designer, and assistant engineer in the chief engineer's office until October, 1937, when he was transferred to St. Louis as assistant architect. He was serving with the M. P. in that capacity at the time of his appointment as architect of the Wabash.

Albert D. Perkins, assistant engineer of the Western lines of the Southern at Birmingham, Ala., has been appointed assistant to chief engineer, maintenance of way and structures, with the same headquarters.

J. Conrad, heretofore assistant engineer of the Canadian National at Vancouver, B. C., has been appointed assistant district engineer, with the same headquarters.

SPECIAL

Douglas B. Jones, Washington correspondent for Look, has been appointed assistant director of public relations of the Chesapeake & Ohio, with headquarters at Cleveland, Ohio, succeeding **H. L. Porterfield, Jr.,** resigned. Mr. Jones, who was born in Los Angeles, Cal., 31 years ago, was graduated from the University of Southern California. During the war he served three years and nine months in the Naval Reserve, aboard the U.S.S. Essex and in China. Mr. Jones was formerly a member of the public relations staff of the Ford Motor Company.

J. Lloyd Burrell has been appointed editor of the Central of Georgia Magazine at Savannah, Ga., succeeding **W. A. Crawford,** who left the road to become executive secretary of the Railroad Association of Georgia, as reported in the *Railway Age* of March 27. Mr. Burrell was formerly information specialist for the Southern area of the U. S. Department of Agriculture at Atlanta, Ga.

R. W. McCarty and **C. E. Hightower,** assistant to division superintendent of the Denver & Rio Grande Western at Grand Junction, Colo., and Salt Lake City, Utah, respectively, have been appointed assistant superintendents of safety.

Mr. McCarty will remain at Grand Junction and Mr. Hightower will be transferred to Denver, Colo.

James R. Brugger, public relations representative of the New York Central at Cleveland, Ohio, has been transferred to New York as editor of the Central Headlight, the company's employee publication, to succeed the late **Chester W. Y. Currie.** Mr. Brugger has been succeeded at Cleveland by **Fred Myers,** until recently contributing editor of Reader's Scope magazine.

OBITUARY

Edgar Judson Rich, who was solicitor of the Boston & Maine at Boston, Mass., from 1903 to 1915, died on July 17 at the age of 83. After leaving the B.&M., Mr. Rich lectured at Harvard University for 15 years on interstate commerce law.

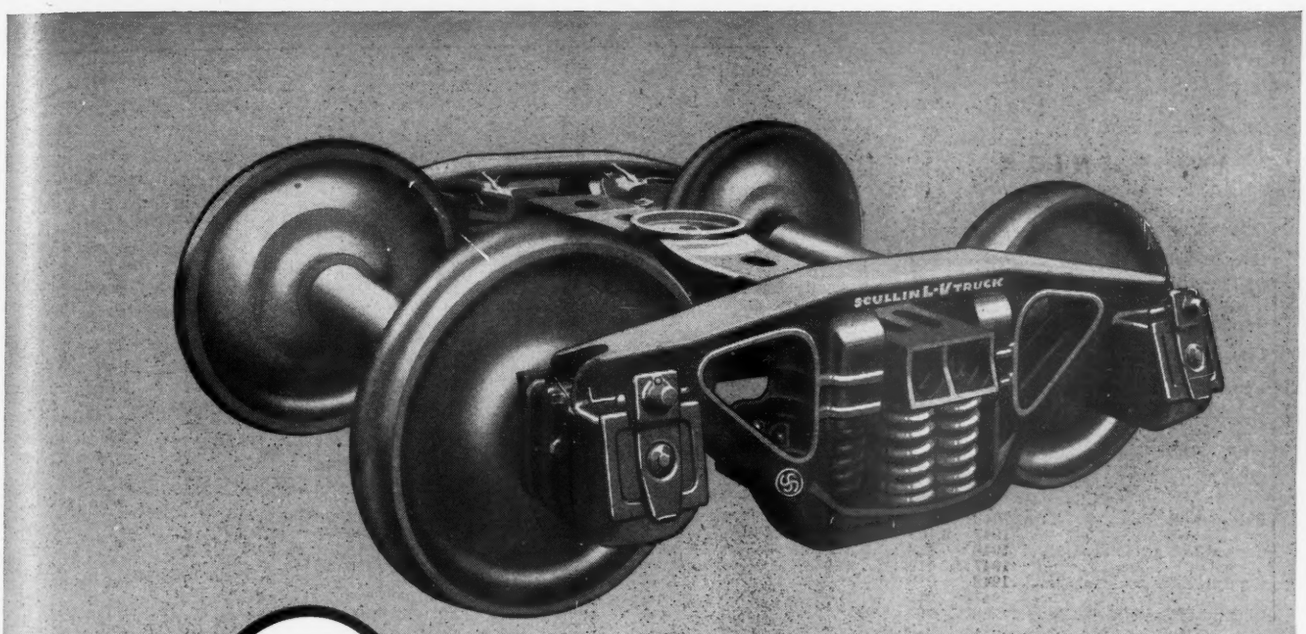
Charles C. Hubbell, who retired on January 1, 1943, as general purchasing agent of the Delaware, Lackawanna & Western at New York, died there on July 19 at Roosevelt hospital, following a heart attack. He was 78 years old.

J. H. Houghton, tie and timber agent of the Missouri-Kansas-Texas, St. Louis, Mo., died recently.

Louis S. Hungerford, retired vice-president of the Pullman Company and Pullman Inc., died on July 25 at his home in Chicago.

James C. Moore, assistant superintendent of freight terminals of the Chicago & North Western, was killed on duty, when struck by a train at Proviso, Ill., on July 24.

Table of Freight Operating Statistics appear on next left-hand page.



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Freight Operating Statistics of Large Steam Railways—Selected

	Region, road and year	Miles of road operated	Locomotive miles: Train-miles	Locomotive miles: Principal and helper	Locomotive miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross excl.locos. & tenders	Ton-miles (thousands): Net rev. and non-rev.	Road locos. on line: Serviceable: Unstored	Road locos. on line: Serviceable: Stored	Road locos. on line: B.O.	Road locos. on line: Percent B.O.
New Eng. Region	Boston & Albany	1948 362	112,183	113,915	8,250	3,006	67.4	183,905	76,105	51	13	28	30.4
		1947 362	144,423	154,256	16,856	3,493	65.2	214,640	85,468	56	4	27	31.0
	Boston & Maine	1948 1,746	295,826	304,238	14,055	12,024	70.8	737,407	310,177	95	4	17	14.7
		1947 1,750	325,339	332,731	12,152	12,451	73.4	741,169	318,265	103	16	15	11.2
	N. Y., N. H. & Hftd	1948 1,815	335,311	640,292	52,041	13,686	72.3	803,281	359,276	190	16	35	19.6
		1947 1,815	380,238	517,045	44,855	14,546	71.6	835,691	358,203	192	5	46	22.0
Great Lakes Region	Delaware & Hudson	1948 794	259,997	311,485	31,180	11,483	70.5	781,248	410,254	125	37	24	12.9
		1947 794	288,163	348,334	36,234	12,779	69.4	901,490	483,659	126	38	31	15.9
	Del., Lack. & Western	1948 970	298,575	332,228	36,049	13,383	70.0	869,217	395,634	100	25	23	15.5
		1947 971	327,539	368,718	44,323	14,202	69.6	928,348	420,645	112	8	57	32.2
	Erie	1948 2,229	646,568	680,021	52,033	34,743	67.1	2,227,018	941,295	247	54	74	19.7
		1947 2,229	764,381	814,983	60,055	36,975	65.9	2,412,461	1,011,828	280	19	86	22.3
	Grand Trunk Western	1948 972	249,732	252,764	2,178	8,739	67.4	551,553	230,207	65	..	10	13.3
		1947 972	286,705	293,084	2,710	9,751	66.6	621,489	260,924	66	..	10	13.2
	Lehigh Valley	1948 1,239	259,811	289,923	43,759	12,632	69.8	844,747	410,329	104	3	32	23.0
		1947 1,239	308,402	340,790	53,647	13,816	69.6	913,465	438,362	117	12	40	23.7
	New York Central	1948 10,351	2,678,934	2,875,380	189,896	105,681	65.0	7,008,280	3,165,068	1,031	101	284	20.1
		1947 10,338	3,208,316	3,435,200	217,442	117,280	63.3	7,952,297	3,581,878	1,031	22	364	25.7
	New York, Chic. & St. L	1948 1,656	560,674	572,100	7,330	24,523	70.7	1,505,862	656,663	137	12	19	11.3
		1947 1,656	652,202	659,466	8,432	25,910	66.7	1,660,403	707,581	148	..	14	8.6
	Pitts. & Lake Erie	1948 223	69,410	69,682	.....	3,326	71.1	273,784	167,651	34	1	11	23.9
		1947 223	94,947	97,111	57	3,686	62.7	314,295	180,746	33	..	14	29.8
	Wabash	1948 2,381	575,378	584,053	13,587	21,865	70.6	1,376,042	595,818	148	18	37	18.2
		1947 2,381	657,740	675,848	14,926	24,056	71.7	1,508,849	661,259	161	3	42	20.4
Central Eastern Region	Baltimore & Ohio	1948 6,076	1,684,924	2,075,858	240,655	63,054	66.9	4,454,433	2,197,479	828	9	310	27.0
		1947 6,103	2,092,979	2,634,388	307,216	71,994	63.4	5,298,369	2,628,676	872	6	269	23.5
	Central of New Jersey*	1948 418	75,746	78,789	6,582	3,062	68.9	218,252	118,731	50	1	13	20.3
		1947 419	85,032	95,478	18,089	3,141	67.2	225,152	116,005	50	..	27	35.1
	Central of Pennsylvania	1948 213	73,215	83,180	14,397	2,902	68.4	208,909	112,075	44	3	12	20.3
		1947 213	84,801	100,575	21,483	3,049	67.7	220,107	116,125	46	2	11	18.6
	Chicago & Eastern Ill	1948 909	153,401	154,392	3,088	5,082	69.4	337,228	160,254	51	..	19	27.1
		1947 910	173,010	174,016	3,272	5,158	69.8	338,342	165,108	57	..	16	21.9
	Elgin, Joliet & Eastern	1948 391	101,388	105,253	3,265	3,441	68.9	259,286	141,674	44	5	2	3.9
		1947 391	115,085	119,285	3,865	3,559	67.5	267,799	143,510	46	2	15	23.8
	Pennsylvania System	1948 10,023	2,989,347	3,389,132	460,666	129,919	66.5	8,849,697	4,207,826	1,798	53	286	13.4
		1947 10,031	3,924,087	4,442,397	606,043	152,341	65.6	10,573,271	5,086,815	1,941	4	297	13.2
	Reading	1948 1,350	398,216	425,151	43,491	14,709	67.6	1,095,415	599,438	212	13	37	14.1
		1947 1,357	485,048	540,973	62,377	16,581	65.5	1,254,619	678,812	232	17	46	15.6
	Western Maryland	1948 837	167,394	196,385	28,320	5,819	66.3	457,635	253,424	155	2	13	7.6
		1947 837	215,944	260,254	36,864	7,263	61.3	609,281	331,544	148	3	15	9.0
Pocahontas Region	Chesapeake & Ohio	1948 5,003	1,123,239	1,196,450	52,521	49,466	64.3	3,776,336	2,106,965	582	15	95	13.7
		1947 4,980	1,480,551	1,588,015	66,294	61,791	60.1	4,920,880	2,703,978	636	..	64	9.1
	Norfolk & Western	1948 2,107	586,783	633,067	48,265	27,339	61.5	2,253,157	1,222,659	269	28	29	8.9
		1947 2,108	677,448	720,662	46,169	30,192	59.6	2,523,711	1,361,095	269	34	15	4.7
Southern Region	Atlantic Coast Line	1948 5,552	985,629	1,003,418	17,234	27,172	62.9	1,819,150	792,435	359	..	79	18.0
		1947 5,556	1,062,162	1,074,816	15,937	25,967	63.6	1,733,330	763,353	382	20	47	10.5
	Central of Georgia*	1948 1,783	296,856	304,431	5,413	7,908	74.6	506,240	248,048	88	5	10	9.7
		1947 1,782	291,805	297,857	5,577	7,257	71.3	478,633	223,294	97	1	9	8.4
	Gulf, Mobile & Ohio	1948 2,847	336,736	338,874	494	16,102	72.8	1,033,324	499,280	176	12	18	8.7
		1947 2,846	421,188	442,457	1,805	16,407	71.3	1,063,911	506,828	176	6	15	7.6
	Illinois Central	1948 6,581	1,264,798	1,274,831	43,797	50,741	67.5	3,466,766	1,677,983	568	9	80	12.2
		1947 6,582	1,451,697	1,473,991	51,431	53,497	65.7	3,635,275	1,705,102	576	11	91	13.4
	Louisville & Nashville	1948 4,750	1,265,832	1,372,802	38,967	34,008	69.3	2,338,242	1,219,747	404	4	70	14.7
		1947 4,759	1,435,785	1,554,147	39,782	35,820	66.8	2,501,852	1,283,792	400	1	74	15.6
	Nash., Chatt. & St. Louis	1948 1,051	249,478	261,867	7,406	6,521	78.9	402,729	195,690	79	..	14	15.1
		1947 1,052	272,539	292,237	7,964	6,569	78.0	396,345	192,870	85	..	16	15.8
	Seaboard Air Line	1948 4,141	811,164	863,552	10,757	25,690	66.0	1,745,982	773,474	289	10	51	14.6
		1947 4,145	881,648	934,853	10,596	25,307	68.4	1,681,419	764,985	277	..	59	17.6
	Southern	1948 6,449	1,532,936	1,555,143	24,107	43,068	70.5	2,677,270	1,198,780	563	25	97	14.2
		1947 6,451	1,738,458	1,764,862	30,185	43,549	69.5	2,731,493	1,210,045	556	16	106	15.6
Northwestern Region	Chicago & North Western	1948 8,055	924,003	971,623	22,020	32,606	66.8	2,193,761	994,483	357	30	101	20.7
		1947 8,061	1,037,546	1,078,490	29,925	33,082	66.3	2,270,505	992,460	357	7	118	24.5
	Chicago Great Western	1948 1,445	201,871	201,871	10,511	8,601	68.8	558,031	246,006	46	6	22	29.7
		1947 1,445	270,607	274,611	8,624	8,498	68.5	559,984	248,984	68	..	12	15.0
	Chic., Milw., St. P. & Pac	1948 10,663	1,263,390	1,314,891	51,614	42,554	66.3	2,818,026	1,248,521	458	71	85	13.8
		1947 10,725	1,448,494	1,543,976	63,635	46,989	64.5	3,207,004	1,444,959	489	21	93	15.4
	Chic., St. P., Minn. & Omaha	1948 1,606	187,172	199,270	12,114	5,145	69.4	339,129	148,599	69	1	41	36.9
		1947 1,606	199,569	210,176	13,745	5,357	67.6	355,423	155,717	78	..	32	29.1
	Duluth, Missabe & Iron Range	1948 569	140,593	141,251	1,122	7,111	51.6	660,336	397,083	42	..	2	4.5
		1947 547	90,677	91,050	910	4,517	51.9	403,331	244,686	41	..	3	6.8
	Great Northern	1948 8,237	945,006	941,968	36,758	38,571	67.7	2,721,211	1,333,365	337	75	64	13.4
		1947 8,237	1,143,136	1,145,527	49,930	40,684	61.6	3,038,979	1,437,866	363	34	68	14.6
	Minneap., St. P. & S. Ste. M	1948 4,180	386,296	396,663	9,943	12,015	67.8	795,305	377,683	126	..	21	14.3
		1947 4,181	459,871	472,921	7,169	13,065	65.9	869,463	401,400	131	..	15	10.3
	Northern Pacific	1948 6,613	756,271	790,628	44,194	29,680	72.3	1,956,086	940,492	308	60	49	11.8
		1947 6,625	860,344	909,635	55,829	33,207	63.9	2,314,940	1,063,479	342	44	54	12.3
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.)	1948 13,081	2,927,775	3,085,622	134,231	106,014	64.0	7,202,783	2,823,841	724	92	141	14.7
		1947 13,107	2,740,726	2,881,490	136,503	100,571	67.3	6,518,589	2,567,773	720	125	120	12.4
	Chic., Burl. & Quincy	1948 8,670	1,128,053	1,149,584	35,990	48,220	66.2	3,236,162	1,471,657	419	36	95	17.3
		1947 8,671	1,323,014	1,366,677	55,444	50,000	64.0	3,498,042	1,595,086	426	14	76	14.7
	Chic., Rock Is. & Pac	1948 7,618	1,149,913	1,184,050	13,633	39,371	62.7	2,653,968	1,126,541	294	19	69	18.1
		1947 7,619	1,311,525	1,338,722	21,264	39,813	60.0	2,770,059	1,156,629	301	7	90	22.6
	Denver & R. G. Wn	1948 2,443	287,513	322,954	38,213	10,888	75.1	727,911	368,313	146	40	39	17.3
		1947 2,471	330,671	368,603	41,478	10,960	77.1	717,430	361,822	142	63	40	16.3
	Southern Pacific	1948 8,106	1,943,192	2,154,531	354,578	79,932	65.3	5,404,096	2,190,479	684	29	184	20.5
		1947 8,159	2,165,674	2,430,008	423,786	83,372	63.7	5,753,021	2,297,471	770	10	197	20.2
	Union Pacific	1948 9,751	1,898,023	1,983,201	164,008	79,860	66.0	5,404,851	2,328,095	486	185	96	12.5
		1947 9,775	2,409,479	2,540,256	189,630	88,702	64.4	6,165,663	2,698,843	664	97	115	13.1
	Western Pacific	1948 1,192	190,529	204,009	15,408	8,192	76.8	494,953	227,372	58	46	17	14.0
		1947 1,192	246,684	273,750	33,106	10,289	75.3	654,298	317,689	82	25	25	18.9
Southwestern Region	International-Gt. Northern	1948 1,110	301,634	302,814	1,127	7,856	62.4	544,485	225,754	78	..	3	3.7
		1947 1,110	309,409	313,087	804	8,342	64.7	552,450	227,413	74	..	14	15.9
	Kansas City Southern	1948 885	181,622	182,013	802	8,791	68.2	599,534	283,378	40	11	5	8.9
		1947 885	225,722	247,371	3,922	8,976	64.1	624,642	293,211	60	1	14	18.7
	Mo.-Kans.-Texas Lines	1948 3,241	493,155	502,300	8,433	16,381	63.9	1,071,363	463,199	113	10	30	19.6
		1947 3,241	536,350	547,457	9,411	15,342	63.8	1,023,276	447,556	115	..	46	28.6
	Missouri Pacific*	1948 6,986	1,389,010	1,430,488	29,383	50,675	64.1	3,409,436	1,452,881	428	..	55	11.4
		1947 7,012	1,574,693	1,630,447	36,314	51,614	64.7	3,539,524	1,549,178	411	2	58	12.3
	Texas & Pacific	1948 1,852	571,895	571,895	13,974	17,030	58.8	1,232,035	483,999	120	..	12	9.1
		1947 1,871	397,446	397,446	7,804	12,250	62.3	874,451	339,245	110	20	12	8.5
	St. Louis-San Francisco	1948 4,615	852,413	882,756	10,991	22,831	66.4	1,530,092	681,866	298	5	31	9.3
		1947 4,615	952,616	980,066	10,919	22,433	64.2	1,558,599	690,385	276	16	36	11.0
	St. Louis Southwestern Lines	1948 1,568	402,112	402,792	5,469	15,368	71.7	945,342	422,582	85	7	15	14.0
		1947 1,568	366,148	368,524	4,844	14,690	77.6	860,368	384,596	84	13	14	12.6
	Texas & New Orleans	1948 4,314	928,733	929,189	17,461	26,125	68.8	1,728,584	757,327	220	..	28	11.3
		1947 4,318	950,495	951,685	16,150	26,452	72.5	1,698,638	763,595	219	..	33	13.1

*Report of trustee or trustees.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.
†Similar data for March appeared in *Railway Age* of June 26, in a table erroneously indicating that the figures applied to January operations.

Items for the Month of April 1948 Compared with April 1947

Region	Road	Year	Freight cars on line: Home	Foreign	Total	Per Cent B.O.	G.t.m.per train-hr. excl.locos. and tenders	G.t.m.per train-mi. excl.locos and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Coal lb. per 1000 g.t.m. inc.-loco.	Mi. per loco. per day
New Eng. Region	Boston & Albany	1948	230	4,713	4,943	0.9	26,879	1,648	682	25.3	475	27.8	7,008	159	47.8
		1947	248	5,161	5,409	0.5	24,275	1,490	593	24.5	535	33.5	7,870	179	72.8
	Boston & Maine	1948	2,074	9,961	2,035	3.1	38,113	2,497	1 050	25.8	849	46.4	5,922	111	98.2
		1947	1,066	10,748	11,814	2.5	35,400	2,282	980	25.6	852	45.4	6,062	106	92.7
	N. Y., N. H. & Hftd	1948	1,481	17,302	18,783	2.0	34,182	2,401	1,074	26.3	606	31.9	6,598	76	92.3
		1947	1,357	20,085	21,442	1.8	31,405	2,204	944	24.6	550	31.2	6,579	97	80.7
Great Lakes Region	Delaware & Hudson	1948	2,658	6,569	9,227	4.4	53,049	3,021	1,586	37.7	1,449	57.5	17,223	113	65.5
		1947	1,570	7,665	9,235	3.3	56,364	3,143	1,686	37.8	1,672	63.6	20,305	1110	70.9
	Del., Lack. & Western	1948	5,159	11,608	16,767	5.5	43,485	2,967	1,351	29.6	790	38.1	13,596	107	93.0
		1947	4,041	15,179	19,220	3.5	43,450	2,874	1,302	29.6	741	35.9	14,440	111	87.2
	Erie	1948	7,169	23,199	30,368	4.3	55,983	3,468	1,466	27.1	1,044	57.4	14,076	105	72.4
		1947	4,857	26,128	30,985	3.0	51,127	3,186	1,336	27.4	1,075	59.6	15,131	100	83.2
	Grand Trunk Western	1948	4,459	9,433	13,892	6.1	42,839	2,219	926	26.6	548	30.9	7,895	86	124.7
		1947	3,509	10,723	14,232	5.5	41,380	2,184	917	26.8	552	31.0	8,948	93	140.5
	Lehigh Valley	1948	6,825	13,133	19,958	8.4	53,659	3,328	1,617	32.5	672	29.7	11,039	97	80.4
		1947	4,347	15,301	19,648	3.8	52,744	3,031	1,454	31.7	742	33.6	11,793	103	83.1
	New York Central	1948	56,208	101,319	157,527	3.8	40,121	2,650	1,197	29.9	697	35.8	10,192	115	81.9
		1947	41,569	107,340	148,909	3.4	39,246	2,518	1,134	30.5	778	40.3	11,549	112	97.5
	New York, Chic. & St. L	1948	3,323	13,509	16,832	1.6	51,659	2,698	1,177	26.8	1,373	72.5	13,218	92	122.3
		1947	1,985	15,517	17,502	1.4	49,454	2,559	1,090	27.3	1,348	74.0	14,243	91	146.8
	Pitts. & Lake Erie	1948	4,303	12,707	17,010	7.7	51,318	3,951	2,419	50.4	334	9.3	25,060	96	53.6
		1947	3,315	11,199	14,514	4.1	50,693	3,327	1,913	49.0	483	15.7	27,017	97	73.1
	Wabash	1948	5,957	13,641	19,598	3.4	47,316	2,411	1,044	27.2	1,014	52.7	8,341	108	102.7
		1947	4,554	15,659	20,213	2.4	45,216	2,313	1,014	27.5	1,034	52.5	9,257	112	117.0
Central Eastern Region	Baltimore & Ohio	1948	44,050	44,782	88,832	7.4	33,160	2,702	1,333	34.9	811	34.8	12,056	147	70.0
		1947	36,311	52,511	88,822	4.6	31,778	2,595	1,287	36.5	993	42.9	14,357	152	88.3
	Central of New Jersey*	1948	716	9,407	10,123	5.4	39,296	2,966	1,614	38.8	376	14.1	9,468	109	71.5
		1947	457	9,675	10,132	2.3	33,705	2,720	1,402	36.9	375	15.1	9,229	134	71.8
	Central of Pennsylvania	1948	1,373	3,476	4,849	9.4	39,611	3,010	1,615	38.6	781	29.6	17,539	123	69.2
		1947	1,031	3,882	4,913	5.6	35,936	2,686	1,417	38.1	781	30.3	18,173	139	77.0
	Chicago & Eastern Ill	1948	2,334	4,053	6,387	5.1	38,096	2,239	1,064	31.5	821	37.6	5,877	109	79.7
		1947	1,521	4,395	5,916	4.7	34,924	1,987	970	32.0	915	41.0	6,048	125	82.0
	Elgin, Joliet & Eastern	1948	6,673	9,680	16,353	1.6	18,672	2,695	1,473	41.2	274	9.6	12,078	180	98.0
		1947	6,516	10,130	16,646	1.7	16,872	2,469	1,323	40.3	283	10.4	12,234	142	99.9
	Pennsylvania System	1948	122,063	119,622	241,685	9.2	39,102	3,045	1,448	32.4	582	27.0	13,994	127	99.9
		1947	116,211	130,143	246,354	9.9	37,216	2,792	1,343	33.4	695	31.7	16,904	133	81.0
	Reading	1948	9,932	20,076	30,008	4.8	32,703	2,760	1,510	40.8	646	23.5	14,801	105	70.8
		1947	7,743	27,704	35,447	2.6	34,490	2,592	1,403	40.9	624	23.3	16,674	108	77.6
	Western Maryland	1948	4,169	3,822	7,991	1.7	29,328	2,804	1,553	43.6	992	34.4	10,093	152	48.1
		1947	2,827	5,825	8,652	1.0	30,399	2,881	1,567	45.6	1,139	40.7	13,204	153	63.9
Pocahontas Region	Chesapeake & Ohio	1948	49,790	30,011	79,801	1.9	49,357	3,408	1,902	42.6	850	31.0	14,038	85	64.9
		1947	44,316	33,720	78,036	1.4	51,863	3,388	1,861	43.8	1,190	45.2	18,099	85	85.6
	Norfolk & Western	1948	29,728	7,225	36,953	2.5	60,522	3,890	2,111	44.7	987	35.9	19,343	96	77.5
		1947	27,146	7,900	35,046	2.3	61,318	3,781	2,039	45.1	1,314	48.9	21,523	96	87.4
Southern Region	Atlantic Coast Line	1948	9,722	22,199	31,921	5.4	27,429	1,855	808	29.2	880	48.0	4,758	116	84.8
		1947	7,463	21,045	28,508	3.7	27,041	1,635	720	29.4	891	47.7	4,580	124	86.4
	Central of Georgia*	1948	2,072	5,477	7,549	4.2	29,930	1,719	842	31.4	1,048	44.8	4,637	136	105.5
		1947	1,258	6,547	7,805	2.6	30,438	1,645	767	30.8	961	43.8	4,177	134	98.9
	Gulf, Mobile & Ohio	1948	2,905	12,896	15,801	1.6	56,196	3,078	1,487	31.0	1,080	47.8	5,846	73	59.3
		1947	2,487	13,197	15,684	1.4	44,991	2,534	1,207	30.9	1,083	49.2	5,936	85	79.4
	Illinois Central	1948	17,474	35,542	53,016	1.5	44,986	2,779	1,345	33.1	1,012	45.3	8,499	119	71.9
		1947	15,668	33,130	48,798	1.1	43,985	2,571	1,206	31.9	1,182	56.5	8,635	126	80.0
	Louisville & Nashville	1948	27,724	16,257	43,981	3.3	27,488	1,847	964	35.9	821	33.0	8,560	128	103.7
		1947	23,723	16,573	40,296	3.8	27,332	1,744	895	35.8	1,023	42.7	8,992	138	117.3
	Nash., Chatt. & St. Louis	1948	1,528	4,781	6,309	5.8	29,474	1,624	789	30.0	1,028	43.4	6,206	135	100.0
		1947	719	5,577	6,296	2.6	27,806	1,459	710	29.4	1,030	45.0	6,111	132	102.0
	Seaboard Air Line	1948	7,286	18,263	25,549	1.2	36,872	2,199	974	30.1	1,068	53.7	6,226	114	93.3
		1947	4,984	17,578	22,562	1.5	33,526	1,951	888	30.2	1,091	52.8	6,152	120	102.6
	Southern	1948	14,041	30,427	44,468	4.7	29,988	1,773	794	27.8	920	46.8	6,196	125	82.5
		1947	12,202	33,353	45,555	3.5	27,364	1,589	704	27.8	895	48.5	6,253	137	91.9
Northwestern Region	Chicago & North Western	1948	19,070	33,698	52,768	3.1	35,321	2,470	1,120	30.5	622	30.5	4,115	117	74.8
		1947	18,210	36,627	54,837	3.6	32,111	2,292	1,002	30.0	589	29.6	4,104	134	84.0
	Chicago Great Western	1948	1,487	4,821	6,308	3.8	45,718	2,764	1,219	28.6	1,353	68.8	5,675	119	98.9
		1947	904	4,899	5,803	2.3	34,315	2,072	921	29.3	1,496	74.5	5,744	130	123.8
	Chic., Milw., St. P. & Pac	1948	23,688	35,811	59,499	2.0	35,542	2,246	995	29.3	689	35.4	3,903	122	79.8
		1947	18,270	41,043	59,313	1.8	34,882	2,232	1,006	30.8	807	40.7	4,491	124	94.9
	Chic., St. P., Minn. & Omaha	1948	1,010	6,872	7,882	4.9	23,943	1,847	809	28.9	626	31.2	3,084	126	66.6
		1947	762	6,830	7,592	7.5	23,453	1,801	789	29.1	640	32.5	3,232	123	71.9
	Duluth, Missabe & Iron Range	1948	14,514	395	14,909	2.8	79,905	4,867	2,927	55.8	877	30.4	23,262	58	114.6
		1947	14,722	422	15,144	1.9	75,843	4,581	2,779	54.2	534	19.0	14,911	65	69.2
	Great Northern	1948	22,759	17,749	40,508	2.9	46,225	2,890	1,416	34.6	1,056	45.1	5,396	93	73.1
		1947	18.177	28,984	47,161	3.2	42,762	2,692	1,274	35.3	1,119	51.4	5,819	100	90.5
	Minneap., St. P. & S. Ste. M	1948	7,103	9,871	16,974	7.8	34,760	2,080	988	31.4	767	36.0	3,012	93	103.4
		1947	5,269	9,091	14,360	4.6	32,296	1,916	884	30.7	988	48.8	3,200	98	118.6
	Northern Pacific	1948	17,993	15,753	33,746	4.6	44,832	2,600	1,250	31.7	898	39.2	4,741	144	71.8
		1947	15,287	20,163	35,450	4.4	44,698	2,718	1,249	32.0	1,052	51.4	5,351	139	79.7
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.)	1948	41,538	39,179	80,717	6.0	48,949	2,471	969	26.6	1,238	72.7	7,196	102	117.8
		1947	35,466	40,648	76,114	5.0	47,419	2,393	942	25.5	1,164	67.7	6,530	106	109.2
	Chic., Burl. & Quincy	1948	15,555	27,723	43,278	3.5	49,157	2,878	1,309	30.5	1,152	57.0	5,658	95	77.2
		1947	11,399	31,426	42,825	3.2	44,909	2,659	1,213	31.9	1,234	60.4	6,132	103	96.3
	Chic., Rock Is. & Pac	1948	10,006	25,176	35,182	4.3	41,009	2,314	982	28.6	1,091	60.8	4,929	96	108.7
		1947	7,966	24,992	32,958	3.5	37,468	2,120	885	29.1	1,120	64.3	5,060	109	117.7
	Denver & R. G. Wn	1948	7,738	6,739	14,477	3.4	43,450	2,555	1,293	33.8	916	36.1	5,025	161	56.2
		1947	7,104	4,922	12,026	4.5	37,919	2,183	1,101	33.0	978	38.4	4,881	168	59.8
	Southern Pacific	1948	24,673	39,241	63,914	3.5	46,722	2,802	1,136	27.4	1,208	67.6	9,008	91	98.8
		1947	21.137	48,049	69,186	2.7	42,119	2,680	1,070	27.6	1,179	67.2	9,368	103	103.4
	Union Pacific	1948	26,763	31,243	58,006	3.3	59,521	2,870	1,236	29.2	1,349	70.1	7,958	115	96.4
		1947	23,845	35,501	59,346	2.9	52,537	2,588	1,133	30.4	1,487	75.9	9,203	132	108.8
	Western Pacific	1948	2,670	2,939	5,609	5.0	54,141	2,608	1,198	27.8	1,412	66.2	6,358	51	60.9
		1947	2,802	3,374	6,176	4.6	55,430	2,687	1,305	30.9	1,696	72.9	8,884	61	78.4
Southwestern Region	International-Gt. Northern	1948	469	7,520	7,989	1.1	32,800	1,832	759	28.7	979	54.6	6,779	107	132.3
		1947	288	7,394	7,682	1.1	33,488	1,818	748	27.3	1,041	59.0	6,829	105	126.6
	Kansas City Southern	1948	1,189	5,595	6,784	3.8	64,976	3,313	1,566	32.2	1,386	63.1	10,673	105	118.3
		1947	1,061	6,494	7,555	2.3	50,958	2,796	1,313	32.7	1,299	62.0	11,044	104	118.4
	Mo.-Kans.-Texas Lines	1948	2,403	8,296	10,699	.9	40,719	2,183	944	28.3	1,516	83.9	4,674	98	116.6
		1947	1,285	8,133	9,418	.9	35,897	1,918	839	29.2	1,516	81.5	4,603	86	119.4
	Missouri Pacific*	1948	15,743	24,722	40,465	2.1	44,713	2,466	1,051	28.7	1,222	66.5	6,932	100	105.5
		1947	14,541	25,970	40,511	1.5	41,660	2,261	989	30.0	1,277	65.8	7,364	110	122.1
	Texas & Pacific	1948	1,510	8,197	9,707	2.4	41,220	2,173	854	28.4	1,577	94.4	8,711	94	155.9
		1947	990	6,588	7,578	2.7	43,593	2,154	862	27.7	1,496	86.7	6,044	89	98.0
	St. Louis-San Francisco	1948	6,543	13,291	19,834	2.0	36,086	1,801	803	29.9	1,176	59.3	4,925	117	94.6
		1947	4,764	15,526	20,290	2.0	32,002	1,641	727	30.8	1,152	58.3	4,987	129	106.4
	St. Louis Southwestern Lines	1948	1,477	5,769	7,246	2.4	45,942	2,354	1,052	27.5	1,953	99.0	8,983	77	137.7
		1947	1,138	4,694	5,832	3.7	47,889	2,352	1,052	26.2	2,099	103.3	8,176	79	118.3
	Texas & New Orleans	1948	3,828	17,852	21,680	2.5	36,674	1,879	823	29.0	1,205	60.4	5,852	85	133.3
		1947	3,079	16,863	19,942	2.2	35,944	1,807	812	28.9	1,285	61.4	5,895	85	134.9

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